

THIS MONTH: 322 RUSSIAN/CIS BULLETIN BOARDS February 1993

BOARDWATCH MAGAZINE

Guide to Online Information Services and Electronic Bulletin Boards

AN AMERICAN COWBOY IN **RUSSIA**

Dave Hughes travels to Moscow
in search of NAPLPS graphics

ONE BBSCON '93 ANNOUNCED
2000 BBS Operators in the Mountains

E-MAIL TO THE EASTERN BLOC

Who's making the Internet
connection in Central
and Eastern Europe

BOUNDARY WATERS BBS

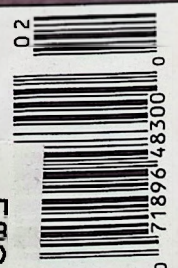
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FINDING THE ON-RAMP TO THE INTERNET

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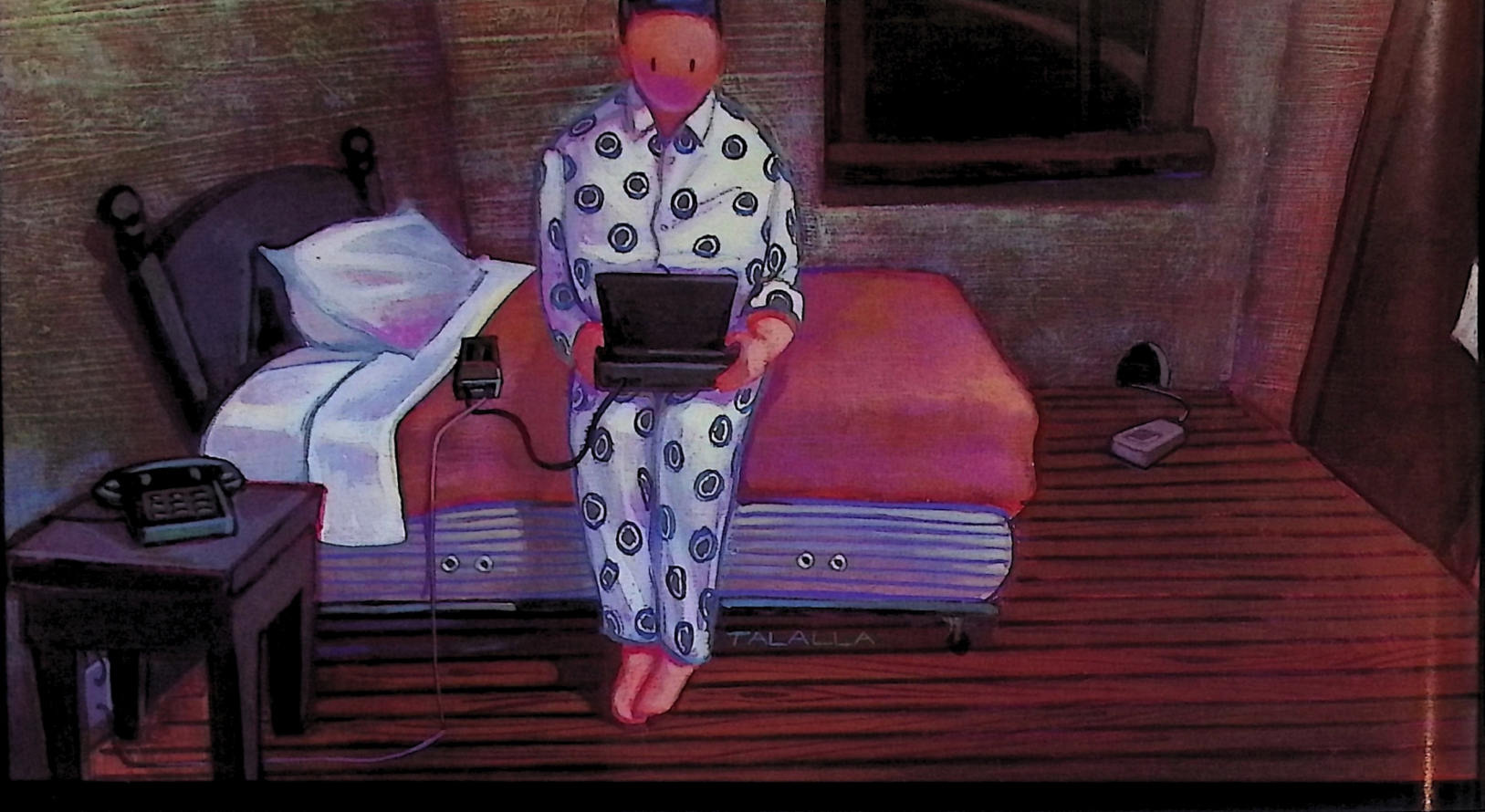


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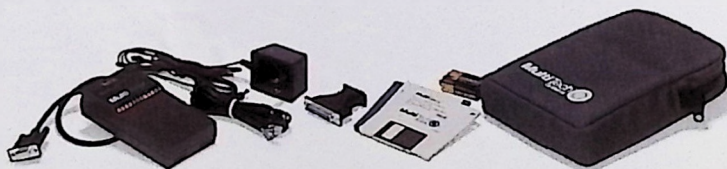
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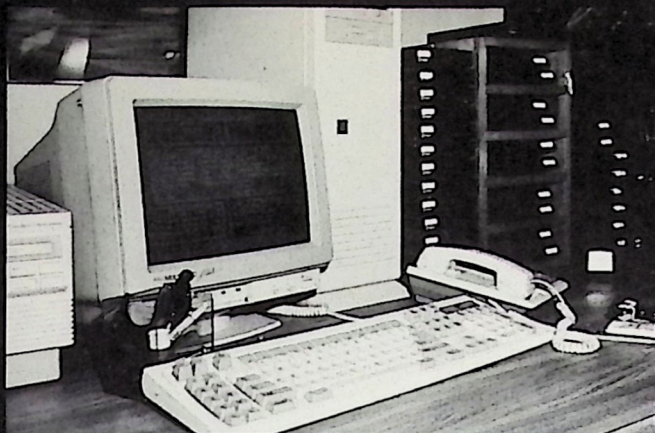
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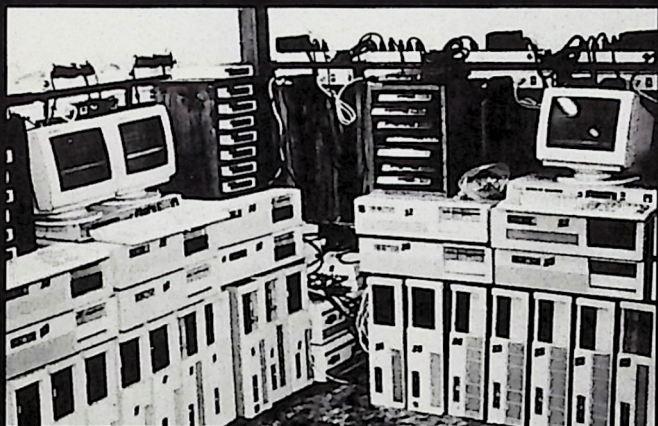
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EDITOR'S NOTES

HIGH SCHOOL IN WISCONSIN MAY NEVER BE THE SAME

I received a telephone call the other night from someone with a Catholic High School up in Wisconsin. Not particularly well versed in online communications, he had heard it was possible to communicate by computer at very low cost with sites in Central and Eastern Europe. The school, for some reason, had the need to communicate with people in some of these countries regarding student exchange programs, etc. And he basically thought if they could just communicate across the globe without paying a \$30 hourly long distance fee, they could gain some ground.

I spent a few minutes with him describing the Internet, some of the development work going on over there, and over here, and some of the access options including local bulletin boards, CompuServe, America Online, GEnie, local University access, and the announced plans of Prodigy. I described how to contact the movers and shakers in networking over there to find out what would be required at the far end. We got in a little deeper in a discussion of how he could put up a St. Mary's BBS in the school, allow students to interact with each other electronically, and possibly port e-mail to the Internet through a local University and correspond with students in Czechoslovakia or Slovenia. He became a little excited over it all.

And after the telephone call, I became a little excited as well. It doesn't seem that long ago that we were trying to get two completely incompatible 110 baud modems to squeal at each other by telephone to connect two tiny primitive computers so we could "teletype" to each other on the screen. We dreamed of a day when we wouldn't have to manually dial the telephone, put the receiver in the rubber cups, and hope that we did it

all fast enough to make a connection - and that we finally had it straight who was ORIGINATE and who was ANSWER. Direct dial modems were a dream come true - dial from the keyboard. When I caused a DEC 10 mainframe computer at Emerson Electric Company to actually do something as the result of what I entered into a Sinclair ZX-81 computer at home - handsomely equipped with 1 KB of RAM and a 300 bps modem, I thought I had just about done it all.

Today, I'm casually describing to a completely non-technical person how to hook his high school up to Ljubljana Slovenia for e-mail and why it is so inexpensive that nobody bothers with per-message charges - they're too much of a nuisance to calculate. When will the message get there? Oh, in ten minutes - or maybe later this evening, it's hard to tell.

Sometimes you can get too close to a subject. The old adage that "when you're up to your ass in alligators, it's easy to lose sight of the fact that you came to drain the swamp" is quite appropos. In the online world, it would appear that we have significantly reduced the water level in the swamp, and as amazing, it would seem the alligators have become partial to having a bit of dry ground to bask on and have volunteered to help dig. We've fought the connectivity battle so long and so hard, that it comes as an enormous surprise to look up and find we're winning.

But we are. It's not just that you can do things now that we barely dreamed of 10 years ago, it's that you can do it in half a dozen DIFFERENT ways - depending on how much you want to pay, how technically inclined you are, what interface you prefer, etc. The costs are rapidly approaching zero. The collective vision of how it all should work and what the end goal is is finally becoming clear, and at the same time, there is a WORLD of diversity in interfaces and routes - pick the one you like and if you don't like any of them, there is an ARMY of people out there working on new ones. It is not unthinkable that a one room rural school can run a BBS and con-

nect to the world - or just Ljubljana. And the Fortune 500 is abandoning centralized mainframes to the point where the market for them is disappearing while the same Fortune 500 is crowding around the booth trying to figure out how they can deploy a \$200 BBS program throughout their organization spanning four continents. Terminal programs, BBS packages, Internet gopher agents, e-mail managers in huge quantity and variety - make no mistake about it - the game for computing in the '90s is communications. And an emerging global network has reached sufficient operational status that the whole thing more or less works.

True, it's a shaky structure - hung together in many areas with baling wire and string. Operating hour to hour with operators hovering over every connection and message to "get the mail through." It goes down, stumbles, recovers, and stumbles again. Literally MILLIONS of people are struggling with the frustrating learning process of how to squirt messages down two tiny wires and make them come out the other side. But like some huge Rube Goldberg nightmare, the whole thing trembles, shudders, shakes, and belches smoke and fire as it staggers to life. But it does live.

And developments in the previous communist bloc countries is where you can view this process at its most eloquent. In areas where voice telephone service has never been particularly useful, you see groups working feverishly to get a connection to the West, and with each other, by computer. When we last did a list of Russian bulletin boards some two years ago, there were 40 of them known to exist and a list of reasons why it was just terribly expensive for people to put them up and why 1200 bps was about as good as it would ever get. In this issue, we list some 323 systems that are alive and well - many of them available via 14.4kbps connections that anyone can make. And courtesy of Milan Sterba and the RIPE organization in Eastern Europe, we present a list of the pioneers who are today trying to spin a gossa-

mer web of dialup links, IP connections, X.25 hops, and who knows what else to link their nations with the world for data. Anyone with a CompuServe, GEnie or AOL account or access to a local BBS that can pass Internet mail can send electronic mail directly to these people TODAY and ask how it's coming in Prague - from their desk.

As this first crude web of global connectivity struggles to life, it is already changing the way the world works. Dave Hughes, our cover girl this month, is one of thousands currently forging working relationships between very small companies here with very small companies there in Russia, to tackle some of the remaining parts in the development of the network itself. The Pretty Good Privacy data encryption program described in this issue is itself the result of an international programming effort with contributions from several different parts of the globe. The U.S. government can pass laws, worry and fret about national security, and argue over patent rights to the RSA algorithm until they pump themselves into hysteria - PGP is everywhere and I don't think any political entity on the planet could actually kill it at this point. They might as well try to forge a globule of mercury into the shape of a spoon with a hammer.

And as that network becomes more capable, stronger, and more universally available, it augurs potential changes in our world that frankly I don't have the imagination to fathom. Simply at the software and PC gadget level where I dwell, what types of software applications will emerge when there is a predictable, reasonably standardized global network to plug it into - that reaches everywhere?

But beyond my own technotoys, how will nations, governments, and individuals react when the concept of a company with no real geographic location becomes commonplace? Who taxes whom? What laws apply?

What will happen to language when the geographic barriers to communication that for all of history have caused the bifurcation of language into dialects and subdialects for ten thousand years - no longer exist?

What will happen to nationalism when three programmers in Russia, three manufacturers in Brazil, and three marketeers in the United States must rely on each other for economic enterprise and well being?

What happens when mass media changes from the "broadcast" of information prepared and presented by a handful of powerful people with their own political and economic agendas - to a caucaphony of information originating from anyone and everywhere with the destination of anyone and everywhere?

I have a feeling school just isn't going to be the same in Wisconsin anymore.

Jack Rickard
Editor Rotundus
Boardwatch Magazine

LETTERS

Address correspondence to **LETTERS TO THE EDITOR**, Boardwatch Magazine, 7586 West Jewell Ave., Suite 200, Lakewood, CO 80232 or to letters@boardwatch.com

Dear Jack:

Absolute statements are false.

Re your comment in the article about USR's (incredibly inept for such a good company) handling of their hid-

den AT commands, you write "The most virulent viruses and most damaging Trojan Horse programs can only damage data on hard disk drives - not the drives themselves."

Au contraire! As a fellow computing old timer, perhaps you recall one of the first viruses, named Pinball. Written (I think) for DEC's TOPS10 operating system, it physically destroyed disk drives by sending the heads (which had a lot of mass in those days) thrashing back and forth between the drive's first and last tracks. Pinball usually wreaked its havoc in the wee hours when a disk drive jumping around like an unbalanced

washing machine would not be noticed. There's even an account (probably apocryphal) of a CDC 9762, a 200 pound 80 megabyte drive which sat on a pedestal like an office copier, actually being dumped on the floor by Pinball.

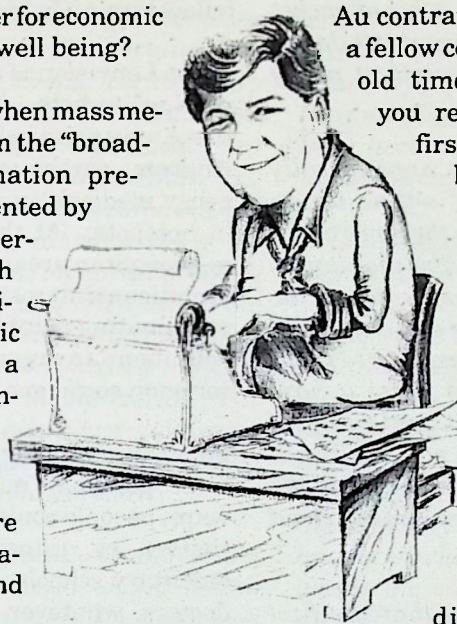
Keep up the good work, and keep on flaunting that G-word. People need to hear it!

Regards,

Wess Kussmaul
Chairman, The Village Group
Cambridge, Massachusetts

Wes:

Well, sometimes. Ok, I'm prone to absolutes, they reduce confusion most of the time, but do increase it some times. At this time, I'm pretty certain USR's statement is false, and there is no way to cause physical damage to today's hard drive by such software.



But yes, at one time there were programs that would do so. Actually more recently than Pinball. There was a program floating around in the mid 80s that would rake a drive head back and forth on a PC system pretty badly. If left for hours on end, it could conceivably cause physical damage to the drives then in use - at least that was its purpose. I don't think anyone ever did, as it made quite a bit of racket and just a few hours wouldn't do the trick - most sysops caught it pretty quickly.

But most such stories are generally the stuff of a sort of online urban legend. The classic is the story of the program that causes the monitor to burst into flames by overstressing the flyback transformer or some such. I'll actually get letters in response to THIS letter from those who insist it happens. I don't believe it, and everyone I've tried to pin down eventually admitted that they didn't PERSONALLY see it themselves - but a friend of a friend etc.

I have heard recently that the first Windows viruses are now appearing. Now if someone will invent one that will cause Windows to actually work without rebooting every few hours. Actually we did come across some online humor delineating the difference between Windows and viruses. Viruses don't take up ALL your available hard disk drive space, and most of them tend to be less annoying.

G-forces.

Jack Rickard

Dear Jack:

I am a new subscriber to Boardwatch. I am enjoying it very much.

I believe you are serving a very valuable function providing a forum for the emerging "alternate" channel of information which, I believe, will revolutionize societies on this little planet of ours. This is the reason why I am writing to you.

I would like to contribute in a small way toward that revolution. I believe that electronic networking technology and "ethos" could be harnessed to create exponential social benefits. The technology is available, the need is palpable, and the will is, I believe there: to organize a volunteer network on national, local BBS nets (to be called something like: VolunNet) - to harness people's desire to help their fellow human beings.

What I envision is a means for "connecting" to help - in whatever need there may arise: whether Hurricane Andrew, earthquake relief, emergency medical supplies or social aid in hotspots. At the local level - in metropolitan areas; or as small communities as interest requires: a simple coordinating point for self appointed volunteers to organize for whatever common social goal.

For example, using software adapted from "personals matchmaking" software, people could volunteer for activities - eg., tutoring, reading in elementary schools, driving elderly to doctors, whatever - with automatic matching or organizations requiring help, with the days, and times availability of the volunteer tutors, aids, etc.

Such nets could be organized either by zip code(s) or area codes for nodes where suborganization could take place.

As "hackers" have been viewed with suspicion by the public and governmental organizations of late, why not enlist the EEF, and some Silicon Valley financial heavies to sponsor development of such a net. It would serve a worthwhile purpose, and by deed, rather than words, demonstrate the power of this new technology. I could see calling it FulcrumNet - for Archimedes' famous words regarding lifting the world, if given and adequate fulcrum.

Would you be interested in pursuit of development of this idea?

My background is: 1) public interest governmental law as a consumer

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advocate (FTC attorney during Nader heydays); 2) entrepreneurial businessman (1978-present); 3) BE in EE undergraduate training giving me some understanding of computer's potential.

My idea is not "off the wall". See enclosed clipping from the Soros Foundations' Open Society most recent

newsletter regarding their sponsorship of a New Technology Program. Mr. Soros, as you may know, personally supported the emerging democratic movements in the USSR and various Eastern European Countries via purchase of fax, copying machines, and support of various dissidents working to democratize their countries - long before 1989. Like Mr. Soros, I am too a native of Hungary. I personally also know the power of an idea, and the power of enterprising, committed volunteers.

I look forward to your thoughts as to feasibility, approach recommended, people to talk to who may advance this idea from the ideal, to the practical.

Sincerely,

Paul G. Foldes
Alexandria, Virginia

Dear Paul:

Actually, it is true that most of the technology and development of bulletin boards has advanced beyond the lone BBS and more in support of networks of bulletin boards. Fidonet etc. are the obvious examples but in the last few years we've seen dozens if not hundreds of specialty "networks" of BBS devoted to some specific theme or cause. There was a four-wheel drive network for awhile as I recall, Star Trek networks, K-12 education network, etc. A network of volunteers and general doers of good is certainly not "off the wall."

While it is true that this particular communications technology can get the message there where other modes fail, it is not invulnerable. When you begin to speak of earthquakes, hurricanes, or even situations such as that now rising in Bosnia, note that the first thing to go is the telephone lines. Such a network would only be effective on the front lines if it had a team of people with wireless data technology (packet, satellite, etc.) they could move in to an area to "connect" it with the rest of the network. In this way, reports of what actually IS needed could be propagated usefully and

quickly. In most such cases, some combination of ham radio operators and BBS operators (historically there is a substantial overlap between these two groups) makes the link. But I think we need someone working more with wireless integration with landline bulletin board networks.

I confess I'm not much of a fan of volunteer groups, or for that matter people with ideas looking for someone else to fund them. But certainly the current system is not working very well. The situation in Somalia is a bit less than new, yet it had to build to a certain critical mass in our mass media before it suddenly became the "in" story. I can see great value in a grass roots network that identified problem situations early and often before the camera crews arrived. And most of us are a little overwhelmed by the general "neediness" of the world. The online medium might just allow room for specifics that people CAN deal with on an individual level.

Personally, my initial reaction to the situation in Somalia was to bomb them with wheat until the place was about 18-inches deep over the whole surface of the country. But on reflection, it is a very positive thing to send Marines over there. In fact, I think all young men in our nation should serve time in the military in places just like Somalia. To the point where I think rather than bombing the place with wheat, everyone in our military ought to just put what wheat they can in their pockets and WALK it over.

It was in the military that I got my first hand views of Thailand, the Philippines, Pakistan, Kenya, Korea, Malaysia, and others. I suspect, at times, that much of the political disagreement and disunity in this country (read squabbling over the most petty things on the planet) are caused by people who think they have troubles - because they've never seen trouble before and don't know any better. They haven't watched children die from things that hardly get you a day off of school in the United States - and watch helplessly, without the ability to do anything at all, and without the emotional cloak and protection of fa-

talism worn by a people blissfully unaware that a couple of simple tablets out of a bottle a few thousand miles away will make it all better - but you didn't happen to have any with you. People who think hunger is "found right here in our own back yard" largely because they haven't a clue what the face of hunger really looks like. People who feel politically disenfranchised who don't know quite what that is - have never seen those actually powerless to persuade the relatively powerful and wealthy that their very lives really ARE worth more than twelve cents - who simply can't make the case - and so die.

It is my fervent belief that in a few months we will receive back into our society some 30,000 young men and women who will view problems with "relationships", the "our group needs more rights" arguments, the ongoing debates over abortion, unemployment, the deficit, women's rights, the environment, and many other things through very different eyes. They will have been where no one has any rights, where the environment is bare dry dirt for a hundred miles or so, where the "right to life" can be had for less than a buck and it means you get to live, where problems in "relationships" are defined by the number of surviving children you can claim, and where most of our concerns seem shallow, petty, and contrived. They will have a view of our own land dramatically quite different from the one they left with, largely for the better, and largely theirs for the rest of their lives. They'll also have a different view of themselves. It's not something you can "share." You have to go get it yourself.

Can you extend that same experience electronically? I don't know. It's worth a try. I could go for a FulcrumNet.

Jack Rickard

Hi Jack,

Really enjoyed the One BBS Con. A suggestion from someone who both attended and purchased tapes; it would be very helpful if speakers

gave their Internet address or BBS phone number for people to contact them. Some did this and it is a great way to pursue additional information. I realize some may not want to give out this information and well, that's fine, but if you could ask speakers to provide it at their option, I'd imagine most would.

Saw your comments in this month's issue about a bigger & better BBS Con. Sounds great. I know I'll be there. Why don't you have it Florida next year? I'll even let you stay in my spare bedroom.

Anyway, I appreciate your efforts and wanted to share this comment.

Sincerely,

Bruce McHollan
bruce.mchollan@keystone.keystone.fl.us
The Keystone Connection BBS - Keystone Heights, FL - 904-473-9790

Dear Bruce:

As I'm sure you know, I'm dying to stay in your spare bedroom in Florida. I haven't been in a real dispute with a set of those galacti-battle cruiser mosquitoes you all have down there in some time, and sure, I get a yen now and then for Florida in August. There's something about the delightful heat and humidity that makes me want to tear all my clothes off, run screaming to the beach, and power guzzle a few gallons of warm margaritas with a crowd of sunburned old people. Seriously, a few years in the Mountains here in the west and our bodies become acclimated to the altitude and the cool, dry air. If we venture into the lowlands for more than a day or so, we wither and die in the vapors - after the fashion of ET. Florida is particularly hazardous for me as a circumference challenged individual. I tend to go to sleep on the beach and whenever I wake up there is always a crowd with slings and boats and such trying to "help me back out to sea." They mean well, but it is embarrassing.

Seriously I am very pleased that the response from everyone who attended ONE BBSCON was so enthusiastic.

It has inspired us to do it for real this next year. Last year was actually just a test case to see if you really wanted one. We gather you did. We announce in this issue that the Online Networking Exposition and BBS Convention (ONE BBSCON) for 1993 will be held at the Broadmoor Hotel in Colorado Springs, August 25-29, 1993. We expect the 1000 who attended the '92 event to return without exception, and to each bring a friend. So we're planning for 2,000 BBS/networking enthusiasts.

This is the home stomping grounds of this month's cover girl, Dave Hughes, and he actually IS approaching apoplexy over the prospect of a ONE BBSCON within gunshot of Roger's Bar in Old Colorado City. If you see an old cowboy in some sort of wireless NAPLPS frenzy, that's him.

We're working hard at a pretty serious upgrade on the speaker/session end of this event and in addition to the fun, it promises to be the most seriously educational event in online history. I'm sure there was some question in the minds of speakers at the '92 event as to just what type of thing Jack and Phil were doing out in Denver. No one wants to fly across country, prepare a presentation, etc. for a hundred BBS guys around a swimming pool in a Howard Johnson's. I don't think there is any question any longer in anyone's mind and I happen to know that many who spoke, as well as many who couldn't make it last year, are dead serious about gunning for a slot on the '93 agenda. We did over a hundred sessions in about 3.5 days in '92 against everyone's thoughtful and kind advice and it worked. This year, our goal is to have adequate ambulances standing by for those who just can't take the intensity. We'll have larger rooms, more of them, better presentations, and more of them.

The Stouffer Concourse Hotel was nice, upscale, and convenient last year and the attendees seemed to flourish under a bit of pampering. If a little bit is good, then more must be better. This year, we're having it at the Broadmoor Hotel. I can tell you that


I have personally never seen a more magic place for an event of this type - it takes my breath away and I see mountains every day. The hotel staff are accustomed to pampering Presidents, Governors, Mayors, etc. quite routinely, but we have explained that this isn't a bunch of political riffraff and they have expressed an enthusiastic willingness to step that pampering level up a bit for our crowd.

We had a very intense vendor exhibit floor in '92 but I was personally a bit nonplussed that because of space limitations at Stouffer's, we had to turn away 11 vendors who waited till June to get their bids in. The Broadmoor has over 20,000 square feet for this purpose and I think we'll use every square foot of that in '93. It was pretty well established at the '92 event that this was a good place to offer specials and do deals, and many BBS operators saved enough on software and hardware purchases to essentially cover the expense of the trip. Again - count on more and better of the same.

While all functions will be at the Broadmoor site, attendees will actually be housed in some eleven hotels in Colorado Springs. Basically, the BBS/networking community is going to take over the city for four days in August. I'm going to guess just the sight of Colorado Springs, an entire mountain town, overrun and under siege by BBS operators and networkers will near enough do me in - ambulances standing by.

I can tell you the size of the convention has reached the point that we are already having to do some preliminary planning for the '94 event. I can probably venture that it will be too large for Colorado Springs, that we very likely will have to take it out of state, and that the Southeast quadrant of the country is beginning to look very attractive - mosquitoes or no.

Your comment about speaker identification is warranted, appropriate, and we'll take it as an action item. Most speaker contact information was available in the ONE BBSCON directory, but having them announce it at the beginning of the session both for



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attendees and those who took audio tapes sounds like a winning plan. The concept of mystery speakers who wish to remain anonymous doesn't appeal to me. We appreciate the suggestion and will make it so.

I look forward to seeing you in person in August.

Jack Rickard

TELEBITS

RUMORS

Everyone in the industry is currently TERRIFIED of Bill Gates and Microsoft. And they do seem to be winning. The biggest part of the problem is that their software more or less works - while the rest of the industry struggles with this little quality issue. Rumor has it that Borland is laying off over 300 workers, reorganizing their operations, and cancelled their Christmas party. Further, there is a rumor that Novell may purchase the company.

Novell seems to be everyone's hope for a run against Microsoft. Apple and Novell are locked in some apparently serious discussions of the "M" word. The M word can be viewed as either Merger or Microsoft, in this context - basically the same conversation. And a Microsoft/Novell battle doesn't look good for Novell. Their Netware product currently owns the LAN market but is seriously overpriced. Windows for WorkGroups is just the first salvo. Now that it is in the open that Novell is the company feeding the FTC in the current FTC examination of Microsoft, bad blood is pretty well cast. Once the FTC investigation is over, we look for Microsoft to announce that Local Area Networking is and always has been a function of the operating system. They will basically GIVE away LAN software, e-mail, etc. that works with Windows to counter Novell's dominance of the market. Microsoft tried to play LAN software straight up and

LOST. By including it in Windows, Windows NT, and for that matter, possibly DOS, they could put Novell in serious difficulty. The days of \$2500 LAN software packages may be coming to a close.

IBM is struggling to find a following with OS/2 and is winning some small battles at least. But the Windows juggernaut looks almost unstoppable. And the mainframe era is officially closed. Rumor has it IBM is looking to lay off some 25,000 workers worldwide in 1993 and decrease their R&D investment by some \$5 billion.

Rumors continue to abound about a pending acquisition of a major BBS software vendor. McAfee Associates, shareware developer of the ubiquitous SCAN and CLEAN anti-viral program, was the first shareware company in history to complete a public offering this past October. After dancing with almost all the BBS players, they seem focused now on purchasing BOTH Galacticomm, Inc. (MAJOR BBS) AND Clark Development Company, Inc. (PCBOARD). Word is, they like Clark's PCBCOMM user interface program.

Canada Remote Systems seems to have had some internal squabbling. Founder Judd Newell has left the company to current owner Neil Fleming. From some postings by Newell online, it would not appear to be a particularly warm parting.

NINTENDO seems to have mounted an attack on bulletin boards. After they successfully shut down a Baltimore pirate BBS titled APL BBS for copyright infringement, they apparently decided bulletin boards were generally given to such activities. Through their law firm Arter and Haden, they surreptitiously obtained the mailing list of PCBoard BBS operators from Clark Development Company and mailed a warning letter to these system operators noting that as many as 5000 pirate BBS were operating in the country. The BBS operators receiving the message were of course a bit enraged and apparently some of them determined the mailing must have come from the

PCBoard mailing list. Clark Development apparently assailed Arter & Haden who responded with an additional mailing assuring the BBS operators that they were not specifically under investigation. Oh well...

Tony Waggner, the Portland BBS operator who filed a complaint with the Oregon PUC when U.S. West tried to charge business rates on his 3-line hobby BBS, appears to have won his fight. The Oregon PUC sided with Waggner on all counts - brushing aside arguments of switch/line usage, number of lines, and the fact that Waggner's BBS handled hundreds of message conferences. Essentially, the PUC said that it was appropriate residential use, no constructive level of professional use was evident, and that U.S. West was out of bounds reclassifying his telephone service to Business Service. The ruling largely pertains to some back billing US West was attempting to collect from Waggner as he had taken his BBS out of service some months back.

COMPUSERVE OPENS SERVICE TO HONG KONG

CompuServe Incorporated announced December 7 that it will provide local dial access and customer support in Hong Kong for the CompuServe Information Service. The company now claims some 1.1 million members.

The new service includes a \$15 per hour surcharge on top of the existing \$12.80 per hour for 2400 bps service and \$22.80 per hour for 9600 bps access. CompuServe is currently one of the most expensive consumer services available at the 9600 bps rate and the Hong Kong access totals a very proud \$37.80 per hour (\$0.63 per minute). The local support and access is provided in cooperation with Hutchison Information Services, Ltd. of Hong Kong. CompuServe Information Service, 5000 Arlington Centre Blvd., PO Box 20212, Columbus, OH 43220

YO, SYSOP! CAN WE
TALK VOICE HERE?
YOU NEED MORE LINES...
YOU NEED FALKEN!



I KNOW, THERE'S A LOT OF
BBSWARE OUT THERE! SO...

What's the FALKEN Difference?

Low Startup & Low Expansion Cost

With over six years of development and operation, **Falken** is a full-featured multi-user BBS. **Falken's** low start-up cost and low expansion cost allows your system to grow profitably.

Falken supports any combination of standard serial ports, modems and multiport serial cards. This is possible because, unlike many multi-user BBS applications, **Falken** doesn't require dedicated IRQs for each internal modem or serial port.

Using our integrated multitasking environment, **C-Switch**, **Falken** breaks the 640K barrier. Streamlined for multi-user applications and optimized for serial I/O, **C-Switch** uses expanded memory so that **Falken** will even operate on XT-class PCs.

Configuration is easy and painless. You can customize **Falken's** menus to your personal preferences. You can create menus and screens for both ANSI and ASCII callers.

Our Open Doors Policy

External applications - such as multi-user games, databases and new file transfer protocols - can be easily integrated with **Falken** as Doors. **Falken** is the first and only multi-user BBS to support Doors.

Several applications are already available, such as *Warlords*, *Net Poker*, *On-line Shopping Mall*, *Chess*, *Opinion Poll*, various *Adventure games*, *Trivia* and *FalkeNet*. Many more will soon be released.

Multi-caller Chat

Join public teleconferences or create private ones. No flipping through channels on **Falken**.

Dozens of commands are available in teleconference.

Features

- **Email** supports distribution lists. Send Email to members of a workgroup or SIG. You can also attach a binary file to Email.
- **Message Base** uses threaded responses.
- **Several File Transfer protocols** including XModem, YModem and ZModem.
- **Sysops can dial-out** while **Falken** is on-line supporting other users.
- **Link teleconferences** with other **Falken** systems to create SUPER-teleconferences.
- **Utilities included** to automate maintenance, billing, monitoring and other functions.

Price List

2-Line Falken BBS . .	\$99
4-Line Falken BBS .	\$199
8-Line Falken BBS .	\$299
16-Line Falken BBS	\$399
24-Line Falken BBS	\$449
32-Line Falken BBS	\$499

Falken Test Drive

A 2-line version of **Falken** is available as shareware. You can download it from our **Support BBS** at 703-803-8000 or call voice at 703-491-5823 for more information.



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Woodbridge VA 22193

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MODEMWORLD TV SHOW TO FOCUS ON CYBERSPACE

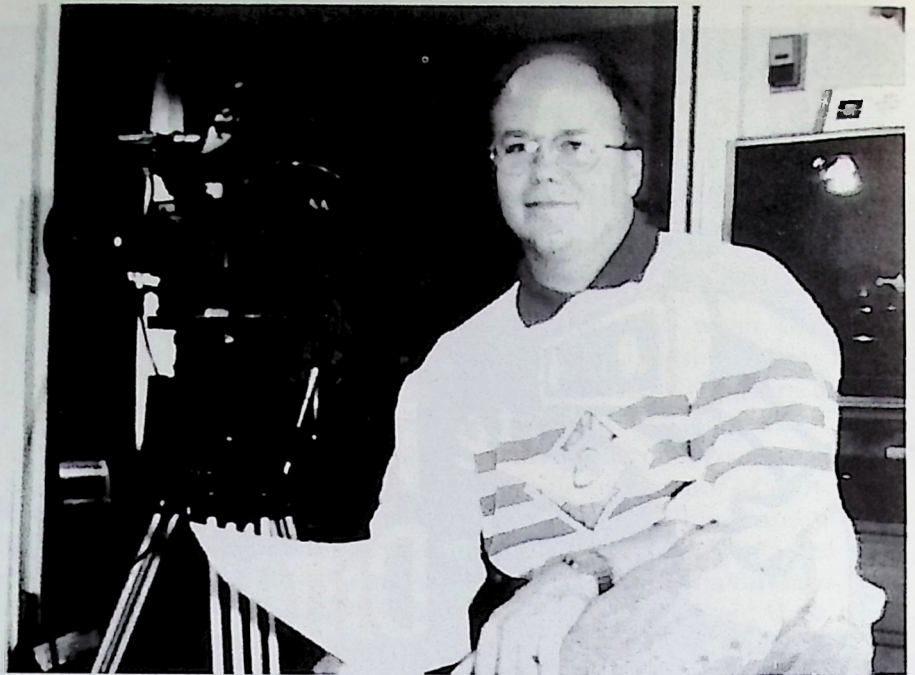
Walter White and Associates, a Memphis video production company is launching a TV show dedicated to electronic bulletin boards, online information services, Internet issues, and other online topics. The program is aimed at providing new and experienced modem users with news and information which will enhance their online experience. It's formatted as a thirty minute news magazine with features on systems, people, equipment, and trends within the online industry.

The main feature of the pilot episode is entitled **THE ONLINE COMMUNITY**. It will be an overview of the online world, discussing who goes online and why. The program will discuss traditional uses of modems and some of the more innovative uses emerging. A second feature will showcase Nova University, a Florida university which offers fully accredited masters and doctoral degrees through computer-based online programs.

Future programming on **MODEM WORLD** will include topics such as Online Education, BBS Software, Online Shopping, Terminal Programs, Electronic Publishing, Corporate BBSs, The Internet, Online Games, Online Investing, and Government BBSs. Yours truly will show up on the WIDE screen in bearably brief segments.

The program will be distributed directly on videotape to nearly 300 user groups across the country. Additionally, it will be broadcast on **February 10** via Direct Broadcast Satellite at 10:00 PM EST on **Spacenet 4, Transponder 8**, Downlink Frequency **3.780 MHz** at location **101** degrees West. It will be repeated again on **February 24**.

Finally, **MODEM WORLD** will be carried on a number of cable television systems including Warner Cable in Boston, Cox Cable in Huntsville, AL, Mile High Cable in Denver, Cox



ModemWORLD Producer Walter White

Cable in San Diego, Memphis Cablevision in Memphis, North Seattle Cable in Seattle, Continental Cablevision in Ft. Lauderdale, FL, Cox Cable in Saginaw, MI; and Cox Cable Quad Cities in Moline, IL all on **February 10**. Check with your local cable system for exact times and channels. We'll have a file on the Boardwatch BBS providing more extensive listings as we get closer to the air date. Walter White & Associates, 7384 Old Dominion Court, Memphis, TN 38125; (901)754-6520.

REPORT ON COMDEX 92

The Interface Group hosted the fall **COMDEX 92** in Las Vegas again this past November 16-20. The show seemed a bit sedate compared with prior years. Either the event did not draw the expected 135,000 attendees or the Interface Group has learned how to manage the event better than in the past. It was relatively easy to get around, get fed, and see the latest computer industry developments. Unfortunately, there weren't many.

The "hot" area at this year's show was "multi-media." Actually, I looked forward to this at COMDEX this year. We've been hearing the term for several years and I was a bit curious as

to what it actually meant. And this year I found out. It means that for **\$200-\$300**, you can convert your **\$3000** PC into a \$149 television set and watch re-runs of "I Love Lucy." Little Ricky never had it so good. The multi-media section was overrun with TV cards that allow you to show cable on your monitor. Leaves me all aquiver just thinking about it.

But communications actually fared pretty well at this year's COMDEX. Galacticomm, Inc., Clark Development Company, and Mustang Software were all on hand in a communications networking area in the Las Vegas Convention Center. Notably, the crowd seemed to know what bulletin boards were, which is a bit of a sea change, and all three vendors seemed pretty pleased despite what looked like some pretty thin traffic compared to past COMDEXes. Galacticomm did complain of getting "Interfaced" - indicating their inexperience in dealing with the Interface Group more than anything else. Most vendors pretty much expect the abuse.

Despite their Interfacing, Galacticomm was showing their new Version 6.0 to good effect. The clunky C code of third party programs has been replaced by a new DynamicLink

Library interface for add-on modules. Galacticom enjoys one of the most robust third party development followings in the industry with hundreds of add-on modules, games, etc. available for the product from over 50 third party vendors. The new DLL interface makes integrating modules with the base package much easier and more reliable.

Clark Development was showing their new multiline PCBoard using the Arnet smart I/O serial port card under **DESQView XWindows**. It looked pretty. We brought home some PCBoard AND an Arnet 16-port card to play with. We'll find out what this will really do in a future issue. Clark was also alluding to a Version 15.0 of PCBoard. The message system is going to get an overhaul with return receipts, file attachments, and more. Significantly, the message header is headed for some major overhaul with larger TO and FROM fields to accommodate some of these connections to MHS, Internet, etc. more easily. They also had their **PCB-MHS Gateway** on hand and were demonstrating an Alpha version of PCBComm, an intelligent terminal communications program allowing novice callers to access a PCBoard system via a local graphical interface.

Mustang Software was demonstrating their **Qmodem Professional** along with the **Wildcat!** product and offering product at a pretty attractive show discount. Qmodem Pro is shaping up as one of the more powerful mail managers available - it can do **CompuServe Mail**, **MCI Mail**, as well as some powerful **QWK** offline mail functions beyond what you're used to - including file attachments, e-mail to fax delivery, and a pretty impressive interface. On Wednesday night, they held their annual COMDEX ping-pong party at Bally's. Over 100 BBS operators were on hand and nearly all won a t-shirt somewhere along the line. The big winners were in the roast beefline. Sysops attending COMDEX shouldn't miss this party.

There were some interesting modem developments. This COMDEX was clearly the year of the **14.4kbps**

pocket modem. While desktop modems have been available in CCITT V.32bis for some time now, the little pocket rockets used for laptop work had seemed stalled out at 9600 bps for some reason. At the show, Hayes, Practical Peripherals, Multitech, and a slew of others were showing not only pocket 14.4 kbps units, but some fairly innovative packaging styles. The Hayes unit is quite odd - it comes in two pieces and the main unit mounts the battery unit. It is cute. The Practical Peripherals model was quite tiny. They also had a \$299 fax unit that attaches to a laser printer. The concept isn't new, but the price point is and we think it might catch on. Practical Peripherals was also raffling off a Harley Davidson motorcycle that was drawing a pretty good crowd.

AT&T was showing a tiny 14.4kbps **PCMCIA** card for laptops. These slide into the PCMCIA memory card slots on laptops computers and it has to be the smallest/fastest modem in the west. It's not actually available from AT&T directly but they are OEMing it through Dell, AST, and other laptop makers. Hayes too was showing a PCMCIA modem - but inexplicably it was a **2400 bps** model.

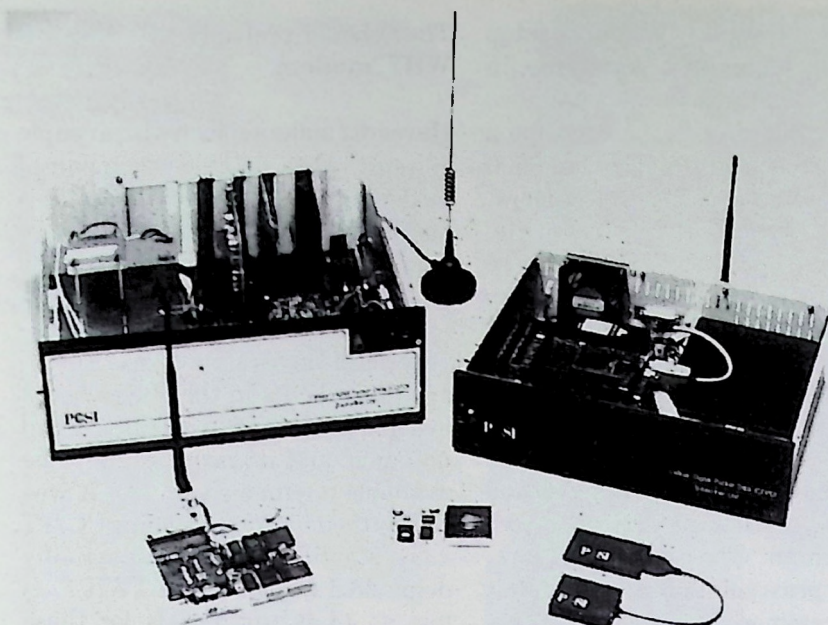
They should probably title this the **WHY?modem**.

Hayes did make a splash with a couple of items. Most notable was a pair of modems talking to each other at a fascinating **28.8kbps**. And they were doing a pretty fancy job of it. The modems were unmarred by any sort of model nomenclature or numbers - very plain Hayes style cases. Everyone thereabouts in the Hayes booth insisted it was NOT a product, it had no name, and it wasn't going to be available anytime soon. But it was clearly their bid for the coming CCITT v.fast standard - and it was actually doing **28.8 kbps**. That's TWICE as fast as **14.4kbps** models for those without calculators. Apparently there is indeed one more round of new modems with higher speeds.

Hayes was also showing a version of their **Smartcom** terminal software for Windows. We've been critical of Smartcom in the past - despite its excellent script language. Early versions of this program were clunky looking and reminded us nothing so much as of PC-Talk. But Hayes may have finally got it right with their Windows version. Notably, it supports their ISDN adapter. But the



**Clark Development Co PCBoard Exhibit
COMDEX 92**



An Array of Cellular Digital Packet Data Prototypes

mouse action was excellent and you can easily "paint" text off a bulletin board and send it back out the port.

Speaking of which, Hayes was participating in the **TRIP 92** nationwide ISDN demonstration from the floor of **COMDEX**. They had a system setup where you could login to their BBS in Atlanta and download files at a full bore **38.4 kbps** ISDN link. Despite ISDN's **64 kbps** capacity, the Hayes ISDN adapter is currently choked to **38.4 kbps** maximum. They claim this will change in an upgrade due this spring. But **38.4 kbps** was pretty persuasive.

ZyXEL was doing a pretty brisk business showing two new items. They have a proprietary **19.2 kbps** version of their **1496** series that is actually shipping. They also demonstrated a **CELLULAR** version that features a proprietary protocol they insisted was better over cellular phones than **MNP-10** and they showed **9600 bps** connections over cellular at the show.

U.S. Robotics was curiously aloof at the show and their booth seemed to

have plenty of everything in it but visitors. The display seemed to have a chill over it. The curious thing was, they had set up a complete rackmount system they call **TOTAL CONTROL** that was actually quite interesting. The rack unit can hold up to 64 modems. It's controlled by a **\$5000** software program that allows you to dial in remotely, check out ailing modems, and take them offline and replace them with one of the spares - all over the phone. For big bulletin boards, this is the dream rack - but the company is extraordinarily proud of it pricewise. We heard **\$130,000** for a full bag 64-line version. As we said, good luck getting anyone to talk about it - or any-

thing else.

The communications hit of the show was something quite different however. A consortium of nine major cellular service providers has gotten together to adopt some IBM technology titled **Cellular Digital Packet Data** or **CDPD** networks. This is actually a **19.2 kbps** network that transmits packet data spread among all the little conversational pauses across the 832 channels a cellular "cell" has available. The result is a pretty smooth **9600 bps** connection.

Ideally, this would allow a laptop with the right hardware to call into a modem pool at the switch, and from there out to ANY online service, electronic mail system, or BBS. According to Jeff Brown of McCaw Cellular Communications, air time on the data network would be sold at a big discount from the rates charged for voice communications. And you could have one device to handle voice and data over the same account.

The **CDPD** consortium includes Ameritech Mobile Communications, Bell Atlantic Mobile, GTE Mobilnet/



Eight lines, one computer...

No problem.

Introducing Wildcat! IM

The new 'Intelligent Multi-Port' version of WILDCAT! is a special release designed for BBS installations requiring up to 8 incoming lines on a single PC, with or without LAN connectivity. Multiple PCs of 8 lines each can be connected in a LAN setting, up to the maximum of 250 nodes. WILDCAT! 'IM' shares all the features and functionality of the rest of the WILDCAT! product line, while taking advantage of the most popular intelligent multi-port serial cards in the industry, the DigiChannel COM/8i, PC/8e or PC/8i.

More Than Just 8 Lines

The eight-line per PC capabilities of WILDCAT! IM are just the beginning. In a LAN setting you can set up multiple 8-line systems combined with local connectivity for all your network users. A 16 or even 32 line BBS now takes only a fraction of the space required previously, and adds the convenience of local LAN access.

Wildcat! IM Packages

WILDCAT! IM is only available in a 250 node configuration, and is priced at \$799. A special WILDCAT! IM+ package, which includes WILDCAT! IM software, DESQview 386/QEMM and a DigiChannel COM/8i serial card and cable, is package priced at \$1,999.

*Another breakthrough from
the programmers at MSI*

SYSTEM REQUIREMENTS:

COMPUTER

An 80386/33 is the minimum system required for operation. As the number of BBS lines and line speeds increase, faster processing may be needed. An 80486 system will operate all eight lines at full throughput, even with the newest high-speed modems.

MEMORY

A minimum of 8MB of RAM is required. To improve file access speed, additional RAM can be utilized for virtual RAM drives and disk cache.

MULTI-PORT BOARD

The WILDCAT! IM version is specifically designed to operate with intelligent serial port cards from Digi International, Inc. The DigiChannel COM/8i, PC/8e or PC/8i cards make use of on-board microprocessor support for communication activities.

MULTI-TASKING

The multi-tasking chores on a WILDCAT! IM installation are handled by DESQview 386 from Quarterdeck Office Systems.



*See your local software dealer or call MSI
at 800-999-9619 for product information.*

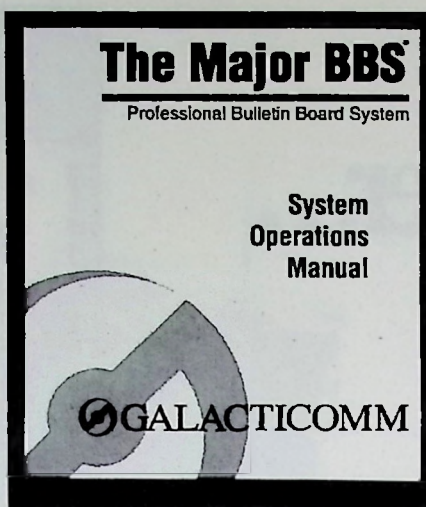
Mustang Software, Inc.
P.O. Box 2264 Bakersfield, CA 93303

Contel Cellular, McCaw Cellular Communications, NYNEX Mobile Communications, PacTel Cellular, Southwestern Bell Mobile Systems, and U.S. West Cellular. The consortium expects to begin rolling out a CDPD option for existing subscribers sometime in 1993.

And this did not seem to be all pie in the sky. Hardware prototypes were on display and in operation at the Consortium booth, the Apple Exhibit, and IBM's setup. IBM had a laptop with the whole thing built in. A company called EOS was also demonstrating a pen-based system where people were playing tic-tac-toe via cellular by drawing Xs and Os on their pen system. There was even a prototype PCMCIA slot card on display that provided data connections.

There have been some pretty serious moves in the past year toward wireless connections. But most of them have involved some pretty serious investment in very proprietary hardware at \$1200 to \$1500. Worse, you were connected to an e-mail service who apparently then owns you to the tune of some \$90 per month. And to go beyond that, they are actually levying data charges on transmissions as well - for some, in increments as small as 300 bytes. Ram Mobile seems to be the worst offender.

But we didn't buy into it. Cellular Packet Data appears to provide UNIVERSAL data connectivity at a much lower price. We think any wireless data solution has to somewhere be connected to cellular telephone service. There are now some 8000 cell sites in 734 cellular areas across the country with the ability to reach 95% of our population. And it's tied into the landline system as well. For many wireless data applications, this is very likely the face of the untethered solution.



QWK MAIL ADDED TO THE MAJOR BBS

Galacticomm, Inc. has announced release of a .QWK mail module for The Major BBS. Titled Major QWK-mail, the add-on option offers offline mail capabilities for Version 6.0 of The Major BBS.

The module was originally developed by Ren L'Ecuier of Farwest BBS in Canada and was acquired and updated by Galacticomm, Inc last summer.

The .QWK mail standard was originally developed by Sparky Herring, our cover girl in the December, 1992 Boardwatch Magazine. It allows callers to dial into a system, download a waiting packet of new mail scanned from a selected group of message conference areas, and logoff. They can then unpack the mailbag and read and reply to messages OFFLINE using any of a number of offline mail reader software programs. These programs often include spell checkers, and other amenities allowing callers to use their favorite editor, for example, and read and respond to messages at their leisure. When they are done, the offline reader creates a packet containing all the replies they drafted, and packs them up into a REP packet. The caller can then dial in to the BBS once again, and simply upload the packet. This process accomplishes a couple of things. It limits the time the caller actually spends online on the BBS and for many, this translates rather

directly into sharply lower long distance telephone bills. For BBS operators, the advantage is pretty clear. They can handle an order of magnitude more callers on fewer telephone lines.

Major QWK-mail is available at \$199. Galacticomm, Inc., 4101 S.W. 47th Avenue, Suite 101, Fort Lauderdale, FL 33314; (305)583-5990 voice; (305)583-7846 fax; (305)583-7808 BBS.

OST ISDN CARD FOR MACS

OST Inc. has announced an ISDN terminal adapter card for use with Apple Macintosh computers. Titled the MacSnet card, the device provides access to Basic Rate Interface (2B+D) ISDN services for both voice and data. The card meets National ISDN-1 specifications and works with both AT&T and Northern Telecom switches. It's priced at \$1095 from OST, Inc., Chantilly, VA; (703)817-0400 voice.

SYSTEM DESIGNER FOR TBBS

PC Information Group of Winona Minnesota has released their first version of a program titled **SYSTEM DESIGNER** for eSoft, Inc.'s The Bread Board System (TBBS) BBS software package.

TBBS has proven to be one of the most flexible BBS packages available. The design philosophy was specifically to allow BBS operators to design or "bread board" a BBS themselves. You can design entire heirarchies of menus with ANSI screens, etc. to develop a system uniquely your own. A basic menu editor is supplied with the system, but most veteran TBBS operators use the **System Development Language (SDL)**. SDL allows them to "program" TBBS using a text editor and the **SDL.EXE** utility "compiles" this into a working system. One of the advantages is that the entire system design can be held in a single text file.

The SDL language is pretty basic. Essentially, you simply enter each menu entry, what key activates it,

what user class can use it, and one of about 50 menu "types". Different types are available to provide access to file downloads, uploads, enter messages, read messages, go to other menus, logoff, etc. In this way, the designer can "template" an entire system to work and look just as they want it to look.

Nonetheless, the concept of "programming" a BBS, compiling it, and so forth seems a little daunting to many users and TBBS is admittedly not always the choice for beginners.

Brian and Gloria Blackledge operate a publishing business titled the PC Information Group in Winona Minnesota. They publish two vertical niche magazines, Clarion Tech Journal, which serves the Clarion database market, and Dimensions, which covers the 4th Dimension database for the Macintosh. As an adjunct to their publications, they also operate a TBBS system titled the PCIG Information Exchange at (507)454-8201.

Blackledge saw a glaring hole in the eSoft, Inc. product line. While TBBS was really a design system for bulletin boards, it didn't appear to Blackledge to LOOK or act like a design tool that non-programmers would be comfortable with. Desktop publishing programs, CAD programs, etc. all have GUI mouse driven interfaces to "design" things. So he wrote a program titled **SYSTEM DESIGNER** for TBBS.

Basically **SYSTEM DESIGNER** looks a bit like a CAD design package. You can draw boxes and menus and so forth on the screen using an object paradigm that allows you to group, ungroup, and move objects around with a mouse. Individual menu items can be defined. Most importantly, the program is a superb ANSI draw/design interface. All the functions of TBBS are accounted for including various caller access profiles, menu types, etc. It reduces the TBBS system design to something akin

to an AUTOCAD type interface.

Once you've designed a system, a menu selection causes **SYSTEM DESIGNER** to create an SDL text file for you. It will then "compile" your system for you using the existing **SDL.EXE** program from eSoft.

Most of the TBBS manual is literally available word-for-word in a pop-up hypertext program very much akin to the Norton Guides. This makes looking up particular menu types, for example, very easy.

Aside from making the design process intuitive and graphical, **SYSTEM DESIGNER** produces some of the most efficient ANSI screens we've seen done. And the SDL code it produces is clean and efficient as well. It reduces the task of updating or redesigning a particular menu or item to the trivial.

*Ultimately, **SYSTEM DESIGNER** is a CAD front end for TBBS. We think it will allow many people to use TBBS that just wouldn't ordinarily want to go through the SDL learning curve. And for TBBS veterans, it makes system design and update chores much easier. As a third party "option", **SYSTEM DESIGNER** begins to look mandatory for serious TBBS design work. The program will be available February 14th at an introductory price of \$149. PC Information Group, 1126 East Broadway, Winona, MN 55987; (507)452-2824 voice; (507)452-0037 fax; (507)454-8201 BBS.*

FROM THE FRONTIER

BBS LEGISLATIVE WATCH

by Shari Steele,
Electronic Frontier Foundation

Legislation from Last Congress May Affect Your Online Communications.

For those of us communicating electronically, it is often hard to see how involvement in the bureaucracy of Washington, D.C., could have any positive

impact on our lives online. But laws that can have great effect on our online rights are constantly introduced and modified in the United States Congress, and last year was no exception. While the 102nd Congress is now history, here is a sample of the legislation introduced over the past year that will likely affect those of us building communities on the electronic frontier.

THREATS TO PRIVACY

FBI's Wiretapping Proposal Thwarted

In a move that worried privacy experts, software manufacturers and telephone companies, the FBI proposed legislation to amend the Communications Act of 1934 to make it easier for the Bureau to perform electronic wiretapping. The proposed legislation, entitled "Digital Telephony," would have required communications service providers and hardware manufacturers to make their systems "tappable" by providing "back doors" through which law enforcement officers could intercept communications. Furthermore, this capability would have to have been provided undetectably, while the communication was in progress, exclusive of any communications between other parties, regardless of the mobility of the target of the FBI's investigation, and without degradation of service.

The privacy implications are frightening. Today, all sorts of information about who we are and what we do, such as medical records, credit reports and employment data, are held on electronic databases. If these databases have government-mandated "tappability," this private information could potentially be accessed by anyone tapping in. In addition, the language in the proposed bill is vague. This is especially troubling since, under the proposal, the Department of Justice (DOJ) can keep communications products off the market if it determines that these products do not meet the DOJ's own vague guidelines. This will probably result in increased costs and reduced competi-

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Access HoloNet through our Berkeley number for as low as \$2.00 per hour. For an additional surcharge, HoloNet can be accessed via national dial-up numbers—a local call in 850 cities.

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Practical 14.4 SA	\$549	YES	NO	NO	NO	NO	NO
Microcom QX/4232bis	\$899	YES	YES	NO	NO	NO	NO
Hayes Ultra 14.4	\$999	YES	NO	NO	NO	NO	NO
U.S. Robotics Courier V.32bis	\$995	YES	YES	NO	NO	NO	NO
Telebit T3000	\$949	YES	YES	YES	NO	NO	NO
Multimodem MT1432BA	\$899	YES	YES	YES	NO	NO	NO
ZyXEL U-1496E	\$469	YES	YES	YES	YES	YES	YES

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Editor's Choice: ZyXEL U-1496E
 German Edition, 4/92

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 Comparison chart was completed in May, 1992.

tiveness for service providers and equipment manufacturers, since they will be unlikely to add any features that may result in a DOJ rejection of their entire product. And to add insult to injury, the FBI proposal suggests that the cost of providing this wiretapping "service" to the Bureau would have to be borne by the service provider itself, which ultimately means you and I will be paying higher user fees.

The Electronic Frontier Foundation organized a broad coalition of public interest and industry groups, from Computer Professionals for Social Responsibility (CPSR) and the ACLU to AT&T and Sun Microsystems, to oppose the legislation. A white paper produced by EFF and ratified by the coalition, entitled, "*An Analysis of the FBI Digital Telephony Proposal*," was widely distributed throughout the Congress. Senator Patrick Leahy (D-Vermont) and Representative Don Edwards (D-California), chairs of two key committees, referred to the EFF paper as they delayed introduction of the FBI's proposal. As Leahy stated before the Senate, "Our goal is to assist law enforcement," but "without jeopardizing privacy rights or frustrating the development of new communications technologies." The Justice Department lobbied hard in the final days to get Congress to take up the bill before Congress adjourned, but the bill never even found a Congressional sponsor (and was therefore never officially introduced). The FBI will almost certainly reintroduce "Digital Telephony" when the 103rd Congress convenes in January.

Cellular Scanners Prohibited

The wrong solution won out as Congress attempted to protect the privacy of users of cellular telephones. Congress chose to ban scanners as it amended the Communications Act with the FCC Authorization Act of 1991. The Authorization Act, among other things, prohibits the U.S. manufacture and importation of scanning receivers capable of: receiving cellu-

lar transmissions, being easily altered to receive cellular transmissions, or being equipped with decoders to convert digital cellular transmissions to analog voice audio. While privacy protection is always important, EFF opposed the bill, arguing that technical solutions, such as encryption, are the only way to really protect private communications carried over the airwaves.

Unable to stop the scanner ban, EFF worked with Representative Edward Markey (D-Massachusetts) and Senator Ernest Hollings (D-South Carolina) to add an amendment to the legislation requiring the FCC to study the impact of this law on privacy. Sometime in 1993, the FCC must also conduct a public inquiry and issue a report on alternative means for protecting cellular telephone conversations with a focus on encryption.

THREATS TO FREE SPEECH

Federal Agency to Study Hate Crimes on BBSs

Recognizing that electronic media have been used more and more often to spread messages of hate and bigotry, Congress mandated the National Telecommunications and Information Administration (NTIA) to conduct a study on "the role of telecommunications in crimes of hate and violent acts against ethnic, religious, and racial minorities." Computer bulletin boards are specifically mentioned as one of the targeted media to be studied under the *Telecommunications Authorization Act of 1992*. Representative Markey, while supporting the Act in the House, cautioned NTIA to be sensitive to privacy concerns while conducting the study. A report on the results of the study will be presented to the Senate before the end of June, 1993.

Congress Regulates Video Transmissions

Much has been written about the passage of the *Cable Television Consumer Protection and Competition Act of 1992*, more commonly

known as the "Cable Act." While specifically designed to regulate rates, establish customer service requirements and prevent unfair competition for cable television providers, the Cable Act may have broader implications for those of us communicating online. The communications networks of the future will include video and data transmission, as well as the voice transmission we are now used to using over the telephone lines. The Cable Act is Congress's first attempt to regulate the wire/cable transmissions that will make up our networks of the future. EFF is currently studying the implications of this legislation, specifically as it applies to free speech over the network.

THREATS TO THE PUBLIC'S RIGHT TO GOVERNMENT INFORMATION

Fees Charged for Use of Government BBS

In a poorly thought-out move designed to raise federal revenues, Congress passed a law permitting the Federal Maritime Commission to charge user fees on its Automated Tariff Filing and Information System (AFTI). The law requires shippers, freight forwarders, ocean carriers and third-party information vendors to pay 46 cents for every minute they are connected to the government-sponsored electronic database.

EFF joined with many other groups, including library groups, the Information Industry Association and The Journal of Commerce, in opposing this legislation. EFF and the others fear that this precedent of allowing the government to charge citizens more than the government's cost for information could be applied to many other federal databases and impinge on the public's access to government data in electronic formats.

Federal Employees Denied Copyrights for Government Software

EFF joined with several other orga-

nizations to successfully stop the **Technology Transfer Improvements Act** in a Senate committee after it had passed in the House of Representatives. This Act would have allowed the federal government to claim copyright in certain computer software created by federal employees working with non-federal parties. Because so much government information is stored only in computerized formats, EFF and the others, including the Software Publishers Association, American Library Association, and Information Industry Association, were concerned that this legislation would impinge on a citizen's right to obtain and use government information that he or she has the right to obtain and use.

Reproducing Copyrighted Software Now a Felony

Under the strong lobby of the Software Publishers Association, Congress decided to stiffen penalties for individuals making illegal reproductions of copyrighted software. The amended law makes reproducing copyrighted software a felony if certain conditions are met. According to the statute, any person who makes 1) at least ten copies 2) of one or more copyrighted works 3) that have a retail value of more than \$2500, can be imprisoned for up to five years and/or fined \$250,000. In order for the infringement to be a criminal violation, however, the copies must be made "willfully and for purposes of commercial advantage or private financial gain." While the term "willfully" is not defined in the statute, previous criminal court cases on copyright law have held that the person making the copies must have known that his or her behavior was illegal. Software backups are not illegal (in fact, they are usually encouraged by software producers), and therefore do not fall under the scope of this statute.

Like most of us, EFF is concerned about the ramifications of this legislation. While the statute itself provides safeguards that seem to place

heavy restrictions on how the law is applied, we are wary that improper application of the law could result in extreme penalties for software users. We will be monitoring cases brought under this statute and intervening if we see civil liberties violations taking place.

NETWORK ACCESS FOR ALL

Commercial Users Given Internet Access

Congress gave the National Science Foundation (NSF), the agency overseeing the Internet, the authority to relax some of its access rules governing certain types of information travelling over the network, including commercial information. The Internet has been an educational and research-oriented network since the 1980s. Over the past few years, however, the Internet has become increasingly open to non-educational and commercial uses. The **National Science Foundation Act** was amended to encourage an increase in network uses that will ultimately support research and education activities.

While the amendment was still being considered by the House Science Subcommittee, chaired by Representative Richard Boucher (D-Virginia), EFF's President, Mitch Kapur, argued for more flexible rules to spur diversity and innovation on the Internet. Relying in part on Kapur's contentions, Representative Boucher sponsored the amendment as it passed in the full House of Representatives; Senator Albert Gore (D-Tennessee) championed it in the Senate. EFF lobbied to convince potential congressional and industry opponents that the legislation would facilitate, not impede, wider access to the Internet.

This past Fall, Mitch Kapur testified before the House Subcommittee on Telecommunications and Finance about the perceived dangers of regional Bell telephone company entry into the information services market. To combat the fear that the

Bells would engage in anticompetitive behavior, EFF proposed an information network for the near future that would be affordable, equitable, and easily-accessible (EFF's Open Platform Proposal). Kapur suggested that ISDN could make such a network possible sooner rather than later and at little expense.

Legislation was circulated near the end of Congress which included the Open Platform Proposal. The proposed legislation, entitled the **"Telecommunications Competition and Services Act of 1992,"** was sponsored by House Telecommunications and Finance Subcommittee Chair Markey and would give government support to anyone moving forward to provide digital telecommunications now over existing copper wires. This, in turn, would pave the way for a broadband network requiring telecommunications infrastructure modernization in the future. This piece of legislation laid the groundwork for a major debate in the next Congress, especially since President-elect Clinton and Vice President-elect Gore have committed themselves to an infrastructure of information highways.

As you can see, Congress has been very busy creating legislation that may affect your lives online. Next month, we will make some predictions of areas where the 103rd Congress is likely to concentrate its efforts.

[Shari Steele is a Staff Attorney with the Washington office of the Electronic Frontier Foundation (EFF), a nonprofit organization dedicated to advancing freedom and openness in computer-based communications. Shari can be reached at ssteale@eff.org (Internet). For more information on the Electronic Frontier Foundation, contact EFF, 155 Second Street, Cambridge, MA 02141; (617)864-0665 voice; (617)864-0866 fax; Internet: eff@eff.org



ONE BBSCON '93 PLANS ANNOUNCED

Preliminary planning for the second **Online Networking Exposition and BBS Convention (ONE BBSCON)** has been completed and the '93 event will be held **August 25-29, 1993** at the **Broadmoor Hotel** in Colorado Springs, Colorado.

Over a thousand BBS enthusiasts attended **ONE BBSCON '92** in Denver this past August - by all accounts the most successful face-to-face gathering of BBS operators, Internet users, commercial service providers, and other BBS/networking aficionados ever held. Over a hundred educational sessions were presented during the three-day event.

Approximately 2000 attendees are expected at the 1993 **ONE BBSCON** as well as over a hundred vendors displaying modems, BBS software and utilities, CD-ROMs, and other tools to make PCs talk in the night. Developers of the PCBoard, Wildcat!, Major BBS, Searchlight, and TBBS software packages have already indicated participation and are planning presentations. **ONE BBSCON** will again be the best available opportunity to examine BBS software packages close-up and side-by-side. And many of the vendors at the '92 event offered significant "show special" discounts. If you are looking for a way to find out specifically what's going on with bulletin boards, how to run one for fun or profit, or how to put this technology into play for your organization or company, **ONE BBSCON** will be the best opportunity you will have in 1993 to see it all in one place at one time, talk to the developers and players, and compare product capabilities side-by-side.

For those already IN the BBS community, **ONE BBSCON 92** was attended by virtually every major BBS operator in the country. Everyone from Ward Christensen, who built the first BBS from scratch in 1978 and wrote the XMODEM protocol, to Chuck Forsberg who wrote ZMODEM, Tom Jennings, who started Fidonet, John C. Dvorak who has championed online communications and written several books on the topic, and a host of the leading BBS operators from across the country and around the world attended. We look for this gathering of notables from the BBS community to be even more all encompassing in 1993. Virtually anyone who is anybody online will be there. If you've ever wanted to talk face-to-face with some of the pioneers of this industry, and find out first hand how and why they got started, **ONE BBSCON '93** will be the place to do it.



The '93 event is designed to take advantage of the Colorado Rocky Mountain environment at its most beautiful time of year. The Broadmoor Hotel is one of the top five hotels in the country and the most beautiful hotel setting in the state. Originally built in 1891 and extensively redone in 1918, the Broadmoor is one of the grand hotel resorts of the west and has earned the nickname "The Riviera of the Rockies." It has received the **Mobil Five-Star** rating every year since 1960 and the **AAA Five-Diamond** rating since 1976. Perched at the base of Pike's Peak, this 2400-acre resort is virtually within view of some of Colorado's most popular tourism stops. The hotel includes three 18-hole PGA golf courses, 16 tennis courts, an ice-skating rink, skeet/trap/rifle shooting facilities, horseback riding, fly fishing, a lake, and other recreational facilities. It features over 100,000 square feet of meeting space and 36 meeting rooms along with eight different restaurants. It's located right at the base of Pike's Peak.

This type of environment allows us to do some things that weren't part of **ONE BBSCON '92** - barbecues and bonfires from the top of a nearby mountain - at night - with a view of the front range from 8000 feet up, for example.

On-site registration opens on the afternoon of **Wednesday, August 25th**, and the final closing session is scheduled for late **Sunday morning, August 29th**. Golf and tennis tournaments for early arrivals are planned for early Wednesday.

Opening sessions are scheduled for Thursday morning with educational sessions beginning Thursday afternoon and running into Sunday morning. Sessions will again be designed in topical tracks such as Running an Online Service for Profit, Legal Issues Online, Social and Community Issues Online, BBS Software, The Internet, as well as a series of mini-symposiums presented by the developers of various BBS systems for operators who use their software. The result will again be one of the most ambitious schedules of educational

sessions ever planned for a convention of this type. ONE, Inc. has issued a call for papers from individuals interested in delivering presentations at the event with topic proposals/outlines due by **March 15** with final paper submission by **June 15**. Session proposals should be directed to **ONE, Inc. president Jack Rickard, 5970 South Vivian Street, Littleton, CO 80127**.

At the '92 event, there was a vendor space shortage with 51 available spaces and as a result 11 vendors were turned away. This year vendor space has been increased to 125 spaces and the vendor exhibits will be open all day Friday and Saturday.

Rooms are available at the Broadmoor Hotel at a special convention rate of **\$150** per night single/double occupancy. A block of some **385** rooms is available at the Broadmoor, but to handle the expected 2000 attendees, some **900** additional rooms have also been secured at ten other nearby hotels at rates from **\$55** to **\$110** nightly. A fleet of ten buses will provide transportation between the various overflow hotels and the Broadmoor.

For many, less costly accommodations at one of the outlying hotels will likely be attractive. But if you do want to actually stay AT the Broadmoor itself at the convention rate, note that the 385 rooms is a fairly small percentage of total housing, and we expect this space to go fairly quickly. Because of the complexity of dealing with 11 different hotels, the ONE, Inc. office will also handle hotel reservations this year in addition to convention registrations - you can take care of both with a single telephone call. **ONE BBSCON '93** Registration is priced at **\$175** before May 1, 1993, **\$250** between May 1 and July 31, and **\$325** from August 1 until the show opens. Contact ONE, Inc., 4255 South Buckley Road, Suite 308, Aurora, CO 80013; (303)693-5253 voice; (303)693-5518 fax; (303)693-5432 BBS.

MACINTOSH BBS NEWS



by Bill Gram-Reefer

MAC GUI BBS GOES NOVA

By the time you read this, ResNova Software, Inc. will have introduced version 3.0 of its **NovaLink Professional (NLP3)** BBS host and client software. Get a load of this.

NLP3 supports local, modem, AppleTalk, Communications Toolbox, X.25, and TCP/IP connections. It also supports a wide variety of interfaces including: TTY, VT-100 (ANSI) including color, NovaTerm Graphics, RIPscrip (ResNova's own host graphics protocol which is gaining quite a following), previous and current versions of NovaTerm (the user/client interface software), and NovaTerm 3.0 for Microsoft Windows. In addition, the product supports automatic Apple to IBM conversion of the extended character set and a complete GUI interface for server administration and design.

One of the real kickers is that NLP3 will support full external application development for interfaces to text files, databases, and network applications. In fact, according to Len Anderson, CEO of ResNova, Chris

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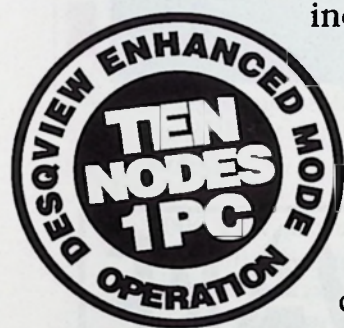
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QWK Message Networking

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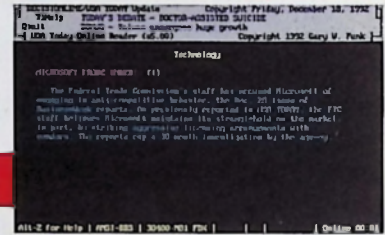
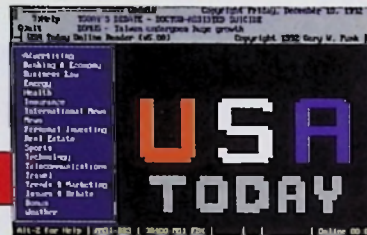
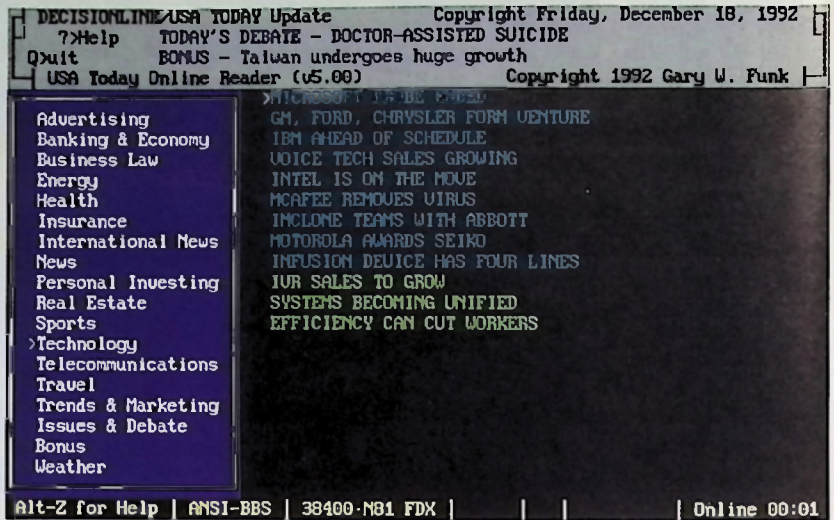
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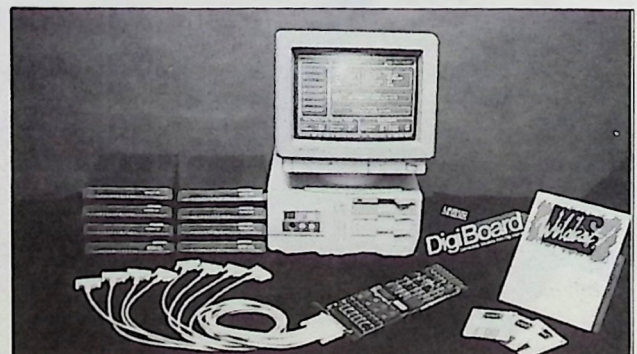
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Vaughn, noted Mac hack and author of MacWoof, is finishing up a Space Conquest/Galaxy Trader type game, commonly found on GENIE and other services, so Mac sysops can offer subscribers real-time interactive, time-consuming entertainment! Len also noted that another third-party has already created an external program that will help you keep track of and invoice (to the minute—we're told) your subscribers' billable time while they play cosmic trader.

Similar in look and feel to First Class, NLP3 offers a flexible host environment that lets you fully configure text, graphics, sounds, menu options, and server structure, while supporting unlimited menus, message forums (including threading and file attachments) and file libraries including auditing, uploads, downloads, file searching, and picture previews when using NovaTerm client 2.0 or higher. File transfers are supported by: XMODEM, XMODEM 1k, ZMODEM batch (all Mac and non-Mac formats), and can be done in the background with NovaTerm 3.0 using RNP, ResNova's own file transfer protocol.

3,000 user accounts are supported, with unlimited guest accounts. Real-time conferencing is also supported for any number of participants, and can be shared over NovaNet, the company's budding worldwide network. Real-time chat is also supported, as are user-to-user bulletins.

All of this takes place within the friendly confines of the familiar Macintosh windowing interface that offers separate windows for electronic mail, conferences, chat, file libraries, and server bulletins. NovaScript, an English-like, built-in programming language lets you customize it all to make your BBS look like your own Rick's American Cafe.

Now, let's get down to business. NLP3 provides interconnectivity to NovaNet (more about which next time), FidoNet, Internet Mail, Internet News Feeds, and Quick Mail. We were told NLP3 can even operate as a TCP/IP server. Hrrrmph!

What's it cost? \$400 base price. Count on the X.25 interface to run you \$1,500 extra. The full-blown TCP gateway will cost an additional \$1,000, and figure \$800 for the Quick Mail connection. I'm guessing here: under \$500 for the FidoNet port. If you don't have that kind of scratch, Lenny sez there's a terrific deal (through April) on the current version of NLP, v.2.1, which will make it less costly to upgrade to the new version. Plus, the kindhearted folks at ResNova are planning on offering a stripped-down version of the TCP product that will offer just news and mail at a lesser cost than the full-featured gateway.

Want some? ResNova Software, Inc., 16458 Bolsa Chica, Unit 193, Huntington Beach, CA 92649, (714) 840-6082 voice; (714) 840-0488 fax; (714) 840-8641 BBS.

MEN ON NETWORKS

Until recently, I could be found in a lather about the **Internet**. Why? It's unfair, snooty, and smacks of corporatism because unaffiliated schmucks like me, who actually graduate from school and work for a living instead of: write for *InfoWorld*, clean test tubes, hack code for Apple, build bombs, futz with recombinant DNA, organize public-employee labor unions, write health policy for think-tanks, work for the gubbermint or IBM (hated it!), or have the power to suck from the public tit in some other deadbeat fashion, cannot, as Joe Q. Public, qualify, or afford the means to secure a federally subsidized dot-com-this e-mail address.

Given these objective social conditions, it appeared that my solitary, poor, mean, brutish and short existence might never savor the sublime, ethereal pleasure one supposedly derives from: surfing the net, climbing the matrix, driving the bit, or motoring down Al Gore's great data highway and otherwise hobnobbing with such cyber wizards as: Dave Hughes, Bill Gibson, Rudy Rucker, and John Perry Barlow; not to mention the ability to correspond with knucklehead academics looking for a grant, hi-tech dweebs, new-age

goofballs, name dropping consultants, and countless hangers-on, all of whom were able to scam a seat on this elitist cash-cow-in-the-making, even though a kazillion public tax dollars virtually bankrolled an entire generation of Library Scientists with time on their hands, the development of an obscure UNIX-based network protocol, and the creation of anonymous FTP.

Until WorldLink. (Loved it!)

Now, you can belong to the club, even if you detail cars on the corner for cash, or perform odd personal services at the Youngstown airport. Forget your neighbors who can't afford computers, healthcare, and food, or your rundown public libraries, for just like the Dow Jones News Service—publishers of Barron's and the Wall Street Journal—you too can pretend to be busy with important, defense-oriented classified research for the Department of Energy when you purchase a monthly WorldLink subscription from Intercon. You'll get your very own private Internet address for mail, plus news, and FTP capabilities for one low monthly fee. Don't swallow, pilgrim, there's more.

The way co-ol part of all of this is you get an easy-to-use software interface that, like the Big Board's Navigator, calls the local access number, sets up the stream, gets and sends your mail and/or file requests and downloads previously FTP'd files. You do the set up offline, including writing and reading mail. According to one knowledgeable observer, "it's pretty slick, actually. . .since it can work without your having to set up a serial line interface protocol (SLIP). This makes it much more accessible, since setting up SLIP would confuse people to no end. So there's quite a bit of technology behind this product."

There are some drawbacks, like no real-time Telenet capabilities (bitch, bitch, bitch). Plus you have to know a file's name, the server it's on, and the path through the subdirectories to request /a particular file. However, you can access Archie, a server someplace in Canada that currently tracks

the contents of 800 anonymous FTP sites containing some 1,000,000 files representing well over 50 gigabytes of data. An adequate users' manual will get you started. I still haven't figured out how to reopen and access mail after it's been given the "send" command—it's there in the outbox before you connect, but, it can't be opened. So watch your mouth.

Available for Macintosh and PC. Pricing: WorldLink Lite (just mail) is \$19 and \$29 for 1,200-2,400 bps and 9,600 bps respectively. WorldLink Basic Service, which includes mail and 50-Mb of news and FTP per month is \$29 and \$39 depending on the transfer speed you select. A wireless option is coming, as are more toll-free Class A phone numbers for local access. NB: all changes to your status, except termination, incur a \$19 fee. Best of all, you can get a free sample, set up an account for one month usage at no cost. After a month, you're off or set up your permanent account.

"Jean-Paul, can you imagine the nothingness to which discussions on the Internet will crumble now that twits like us can just barge in and discuss vendor-manipulated IEEE specifications as if it were all Monty Python at the Ministry of Silly Walks?" To get a free diskette containing the program and some online documentation for your resident revolutionary, call: (800) 638-2968 and tell Johnny you saw it in Boardwatch. Intercon Systems Corporation, 950 Herndon Parkway, Suite 420, Herndon, VA 22070.

BOOKS OF NOTE

MORE BBS AND BEYOND

The first edition of *Bulletin Boards and Beyond* (BBS), sold out in four months, and became the single-best selling Macintosh book in any of the book stores that carried it. Since demand quickly overwhelmed the order processing system, the author anticipates very heavy demand for the second edition.

Available in February, the second edition of BBS (ISBN 10879791-03-

X), will be distributed nationally through BookPeople, Ingram and Baker & Taylor, and so can be ordered from virtually any bookstore in the U.S. To order by phone contact the Stanford University Bookstore at (800) 533-2670; CompuBooks at (800) 880-6818 (70007.1333 @compuserve.com); or Quantum Books at (617) 494-5042 (quanbook@world.std.com).

BBS is 700 pages in 8.5 x 11-inch format, with 34 chapters, an index and glossary. It covers everything from an introduction to modems for beginners to an advanced, in-depth discussion of how to make your Mac into a node on the global Internet. Containing over 300 pages of new material, this greatly expanded edition covers the new batch of GUI host software available for the Mac. There are more than 150 pages of new material on connecting to the Internet using graphical front-ends such as TurboGopher and Eudora; commentaries and histories by network luminaries; and guides to the Internet, Fidonet, and RIME networks. Virtually every page of the original edition has been rewritten, the author claims.

The list price for BBS is \$29.95, with volume discounts for user groups, sysops, schools, and universities. Upgrades from the first edition are also available. For more information contact Bernard Aboba (510) 547-0345 voice; aboba@world.std.com, or mailcom@aol.com.

DVORAK'S GUIDE TO PC TELECOMMUNICATIONS

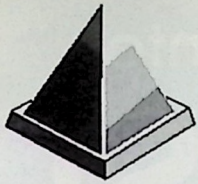
Packaged as "a complete overview of the world of telecommunications," the second edition of *Dvorak's Guide to PC Telecommunications*, is more than a resource book; it is a demonstration of the tremendous development that the computer publishing business and the online world has experienced in only the last couple of years.

You get a good feel for the Guide right away by working your way from both ends of the book into its middle. Pasted on the inside front cover, for instance,

is a bright yellow diskette jammed with popular PC software including communications, text-processing, compression and virus protection programs. You'll also find 5 pages of "thank yous" in the acknowledgements section, a veritable compendium of who's who in the business. In the back you'll find a variety of money-saving coupons in addition to a first-rate 25-page index. No less than eight appendices are included. These range from the perfunctory (160 pages of *Tymnet*, *Sprintnet* and *Compuserve* access numbers, a listing of descriptionless bulletin boards and their numbers, not to mention the gratuitous 20-page directory of modem manufacturers) to more useful fare including a helpful glossary, cable diagrams, ASCII codes, the AT Command set, and the book's crowning glory, a listing of over 100 "Emoticons," those odd shorthand symbols used to indicate humor :-), smirks :-1, or a wink ;-), if only to illustrate just how clever you really can be when communicating with but a keyboard.

The book itself is divided into seven sections. You get an overview of telecommunications, a primer on modems and software, a summary of bulletin boards and related shareware, details on services and advanced connectivity, information for advanced users, a well thought out and presented, 111-page tutorial on how to use the key programs included on the diskette, and the appendices. Throughout, the Guide successfully educates bold beginners and seasoned pros alike on how to better understand, access, use and maybe even have fun with this new order of foundational technology.

Just a tad too much whining about how different the Mac is, for my taste, but at least the ground is covered in cursory fashion; along with a section on telecomputing with the Amiga. Throughout most of the book you'll find special READ.ME sections containing information about protocols, programs, user tips and other options. These notobena break up the flow of the body text and are a graphic bother more apt to cause a migraine



BOARDWATCH MAGAZINE



1993 READER'S CHOICE BBS CONTEST

Boardwatch Magazine is sponsoring a contest to find the 100 most popular bulletin board systems in North America - and the ONE BBS most popular among callers. The contest will run from January 1, 1993 through July 1, 1993. Winners will be announced at the Online Networking Exposition and BBS Convention (ONE BBSCON) held at the Broadmoor Hotel in Colorado Springs Colorado, August 26-29, 1993. The Boardwatch 100 list will be published in subsequent issues of Boardwatch Magazine and distributed in electronic form world-wide.

PRIZES FOR BULLETIN BOARD OPERATORS

1ST PRIZE: The BBS system receiving the largest number of valid ballots will be named the most popular BBS. A trophy will be awarded to the top BBS at the Online Networking Exposition and BBS Convention (ONE BBSCON) held August 26-29th, 1993, at the Broadmoor Hotel in Colorado Springs, Colorado. Additionally, the winning BBS will receive air fare, hotel accommodations and registration at ONE BBSCON for the primary BBS operator as the guest of Boardwatch Magazine. Additionally, the system will be featured on the cover of Boardwatch Magazine with an accompanying feature length story about their system and a free full-page black and white advertisement in Boardwatch Magazine for a period of three months.

TOP TEN: The ten most popular bulletin boards selected by the voters will each receive an award trophy at on their system in Boardwatch Magazine, inclusion in a special top ten BBS listing in the magazine, and a free quarter-page black and white advertisement in three successive issues. Additionally, they will be listed in the Boardwatch 100 BBS list.

TOP ONE HUNDRED: The 100 bulletin boards receiving the most votes will each be listed in the Boardwatch 100 readers choice BBS list. This list will be published in Boardwatch Magazine and freely distributed electronically on thousands of bulletin boards world-wide.

IN CASE OF TIE. Positions for which an identical number of votes are received will be determined by point value established by the date stamp assigned to each received ballot. Time/Date stamp values are accumulated for all votes and a cumulative score assigned to each BBS based on date of receipt of ballots. Votes receive a date stamp value between 1 and 180 based on the day of the contest the vote is received. System with lowest (earliest)

cumulative date stamp score will prevail in event of tie.

PRIZES FOR VOTERS

All valid ballots submitted by voters will be entered in a random sweepstakes drawing. As of the opening date of this contest, prizes include two U.S. Robotics Courier Dual Standard 16.8K Modems, two Hayes OPTIMA 14400 + FAX 144 modems, and two ZyXEL U-1496 14,400 bps modems - and more are on the way. A minimum of six valid ballots will be selected from all entries and each will receive a free modem - from the most popular modem manufacturers in the world.

RULES FOR CALLERS

Each voter can vote once, for a single bulletin board system. Each ballot must be fully completed, and individually mailed by each voter. We will verify ballots as necessary. There are three ways to vote:

1. Complete this ballot and mail to: BOARDWATCH MAGAZINE, READERS CHOICE BBS CONTEST, 5970 South Vivian Street, Littleton, CO 80127
2. Complete this ballot and FAX to (303)973-3731.
3. Or, dial the Boardwatch BBS at (303)973-4222 and complete the online ballot provided on the main menu.

Balloting closes at 23:59:59 on June 30, 1993. Last year it ended at midnight on July 1 and caused all manner of grief and confusion so we're cutting a second off of this year's contest.

This contest is not limited to Boardwatch Magazine subscribers, and no purchase of anything is required to participate in this contest. Reasonable facsimile's of this ballot are acceptable, so long as all specified information is included.

We held this contest during 1992 and it generated 11,152 votes by the close of balloting for some 1250 different bulletin boards. The TOP system received about 450 votes. Your individual vote can have a tremendous impact on the outcome of this contest. Further, the odds of winning a modem in last years contest, were 1 in 1394. You won't get those odds in the lottery.

TITLE OF BBS YOU VOTE FOR AS THE BEST: _____

PRIMARY BBS ACCESS TELEPHONE NUMBER: _____

VOTER NAME: _____ VOICE PHONE NUMBER: _____

STREET ADDRESS: _____

CITY: _____ STATE: _____ ZIP CODE: _____ COUNTRY: _____

PRIMARY COMMUNICATIONS SOFTWARE YOU USE: _____

PRIMARY MODEM MANUFACTURER AND MODEL: _____

HIGHEST SPEED YOUR MODEM SUPPORTS: ☐ 1200bps ☐ 2400bps ☐ 9600bps ☐ 14400bps ☐ 19200bps

DO YOU USE MS WINDOWS (Y/N): _____ DO YOU HAVE A SECOND TELEPHONE LINE FOR USE WITH YOUR MODEM (Y/N): _____

TOTAL CALLS YOU MAKE TO BBS PER MONTH: _____ WHEN DID YOU MAKE YOUR FIRST BBS CALL (MM/YY): _____

AGE: _____ SEX (M/F): _____ PROFESSION: _____

SIGNATURE: _____ DATE: _____



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So many have asked for this one. This is a complete TBBS conference system replacement. Pulling features from Major BBS and DLX this system will not leave you wanting for features. Yes now you can even browse another user while in chat! And we have even put in a few unique features just to insure that TBBS will now have the best chat system...BAR NONE!

FILEMAN

At \$119.00 FileMan is the most complete and easy to use file management system for TBBS. With features that include FileOp designation, script file downloading, UL/DL Ratio enforcement, POINT & TAG, on-line file description editing, password protection, file charging capability, 1024 character extended descriptions, DL time calculations, complete file system usage tracking log and much much more!

Fileman is designed to compete with the best BBS file systems.

NOW WITH ONLINE GIF PREVIEWING and ARCHIVE FILE EXTRACTION!

FileMan also has enhancements for the COPYIT! module for CD-ROM and DISC SERVER setups. This allows CD-ROM access with zero TBBS impact on LAN based TBBS systems. Supports 65 line and 11 tasks. FileMan now also supports CD-ROM carousels and SIX PACKS.

Enhancements for the TapeMan Online Backup System.

FOR TBBS 1.2 (FILEMAN 1.0 FOR TBBS 1.1)

LIVEWIRE

At \$39.00 LiveWire is a TBBS system that allows you to display a headline message on the actual face of any menu in the system's structure. The headline is presented along with a sysop defined keypress to allow the user to see more information on that topic. Its one line display is completely configurable in every sd menu for foreground/background color, keypress starting cursor location, ending cursor location, and option bell. BEST OF ALL...THE HEADLINES KEEP CHANGING! Everytime the user loads that menu, or any menu that has LiveWire inserted in it. The headline will change to the next unread record until all are read. It will properly configure itself for ANSI and NON-ANSI users and will take into account their screen widths.

FOR TBBS 1.2

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or call...

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TAPEMAN

At \$99.00 TapeMan is the first Realtime ONLINE tape backup and file archiving system for TBBS 1.2. This includes a complete restore system. TapeMan can be used on a network for complete backup to tape of files while TBBS is running with no TBBS impact. TapeMan can also be used in non network configurations to greatly speed up the tape process in external events or to simply archive a backup to another drive. All this while TBBS is running. TapeMan can be run manually or as a Ghost Event for automatic daily tape backups or archiving.

COPY-IT!

At \$89.00, Copy-IT! is an option that allows CD-ROM and DISC SERVER operations on a LAN. Use Copy-IT with FileMan for GIF preview and Zero Impact File Transfer. Use With TapeMan for Disc Backups without taking down the board! Copy-IT can handle 65 lines with 11 concurrent tasks!

SYSMON

At \$79+.00 SYSMON is a realtime remote control system designed to look and work just like the TBBS 2.2 console. SYSMON can be configured to handle up to 65 lines including the console. SYSMON can also be used by your regular callers as a system overview and alarm watch system. Many features including complete system usage logging, TBBS application launcher and a duplicate user logging and drop. Version 4.1 now supports EGA43 line mode to display all 65 lines on screen at once.

FOR TBBS 1.2 ONLY...NOW WITH DROP CARRIER DETECT

NAPS

At \$199.00 NAPS is the first system to provide total NAPLPS graphics control and transmission. The NAPS System is comprised of System Control and Transmission, a distributable terminal program and the MGE editor by MICROSTAR, Ltd. This system brings unbelievably high resolution graphics and 3_D ANIMATION to you TBBS System.

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than enlighten. Luckily, in the tutorials, the READ.MEs are replaced by a skull & crossbone icon to warn readers of truly grave consequences.

In sum, you've got to love this book for what it is. The Guide is a classy, well done example of how to profitably republish 10-years worth of wit and PC wisdom through smart remarketing that features strong brand name appeal and an attractive box with reliable product inside—except maybe the bit about MCI being so easy-to-use because of its user-friendly design! Sounds pre-GUI to me.

Little slips like that show you just how far back some of this stuff goes. For instance, the Guide provides a peak into the future with commentary on officious sounding initials like PCMCIA, ARDIS, ISDN, and cellular modem technology and X.400 networks. Yet, if you follow Dvorak's work you've probably already seen these same musings in **PC Magazine** and elsewhere. That said, the ALL NEW SECOND EDITION [sic] of Dvorak's Guide is a good product with more value than most computer books ever offer. Highly recommended. *Dvorak's Guide to PC Telecommunications, 2nd edition*; by John C. Dvorak and Nick Anis; softcover with diskette, 1128+ pages; Osborne McGraw-Hill, \$39.95.

MAC BBS OF THE MONTH

If you're an auto buff—and what living, breathing sysop isn't—you'll certainly want to bolt your screamin' dual-carbed, **V.32bis**, high-speed, **V.42bis**-equipped with MNP, multi-standard, rack-mount USR modem to the floor and telecommute on down to the **Autobahn BBS**, based in Ithaca, NY.

Although intended to serve the local Macintosh community, this FirstClass system also caters to a national audience of automotive enthusiasts. Scott Mandell's conference, AutoTalk, is distributed nationally through the OneNet Member Net-

work, a FirstClass network.

The Autobahn features some cool and appropriate sounds as well as an innovative Quick Conference that let's users access all of the conferences on the board through one folder. Mac files include GigaRom 2.0. That said, the slim pickings is understandable in the GIF, QuickTime, and games file folders.

In addition to AutoTalk, the board's conferences include EcoLink, STARnet, Arnie's Village of Love (strictly junior-high, PG-rated from what I c+ould see) and a Science section with threads on Physics, Astronomy and Space, Bio-tech, and Chemistry. The classified folder seemed reasonably active, suggesting an oft-frequented local base of callers. The vendor support features an active discussion of Broderbund's products, and serves as the home base for OneNet's Info Electronics conference; IE being a key software developer of connectivity gateways for First Class.

VvvVvvVvvVrrooommmm! The Autobahn BBS can be reached by modem at (607)256-7595 (24 hrs). Punch it!

ATTENTION MAC SYSOPS

If you have a Macintosh-based BBS, let us know who you are and what you think you're doing that makes your board special. To make things easy for everyone, mail a diskette containing your user program with a preset account, time allotment (1-hr for editorial deadbeats like me should be plenty) and password to the address below so I can log on and take a look around your system. Also include a text-file that describes your board and any interesting places on it you think are special. I'll try to visit as many boards as possible and write about the most interesting ones I can find. **MAC BBS**, 2069 Highland Drive, Concord, CA 94520.

[Bill Gram-Reefer, based in Concord, California, is president of WORLDVIEW, a public relations

firm specializing in connectivity and communications. As the former editor of SHOWPAGE and associate publisher of Western MicroMarket, Bill has been writing about Macintosh computers since 1984. He operates WORLDVIEW BBS (510) 676-2919, running on a Macintosh computer, and is a moderator of Planet BMUG's modem conference (510) 849-2684. He can be reached via his new nose-turned-up-at-you Internet address at: wk05156@worldlink.com]

COMMERCIAL NETLINE



FINDING THE ON-RAMP TO THE INTERNET

by Don Rittner

Have you wanted to reach someone on the Internet, but can't seem to find a connection? The Internet connects approximately 6,700 networks in some 44 countries, and most of the commercial online services now feature some form of Internet gateway connection.

Millions of scientists, professionals, educators, students, business folks, government employees, and lay

Need freedom from BBS LOCKUPS?



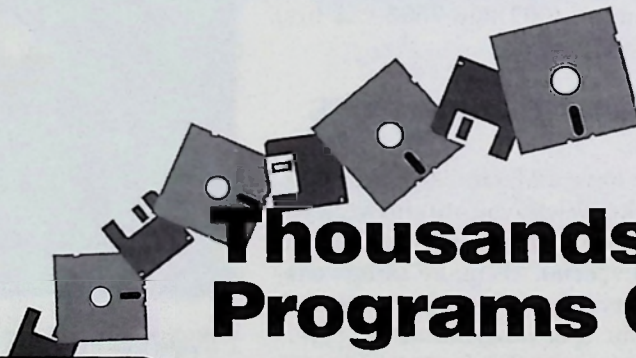
If you are serious about your BBS, we are serious about keeping it online. The Computer Sentinel is an intelligent microprocessor device which automatically monitors your BBS and restarts your BBS when a lockup occurs. No need to call the BBS to fix it; with the Computer Sentinel, your callers do that for you.

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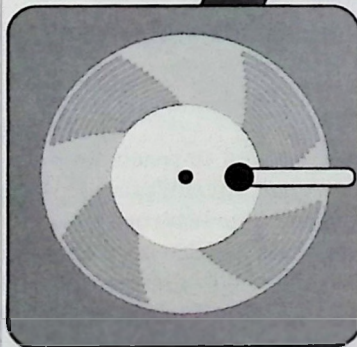
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people use the Internet everyday to send email, download files, remotely logon to supercomputers and databases, join discussion lists, and work in online communities separated geographical by miles and miles and with no time constraints. It can be said if you can't find an answer to a question on the Internet, there is no answer!

The Internet is a constantly moving freeway with virtually no stop lights and is quickly becoming the world's communications highway, but many of us can't seem to find an on-ramp.

It's easier than you think.

Over the past few years, parts of the Internet have been opening up to allow general computer user access. Today, if you have an account on any of the major commercial online services like America Online, CompuServe, and GENie, you already have access to the Internet using their email capabilities.

I'm going to show you how to become part of the Internet community this way.

Most activities on the Internet come down to human communications—person to person email—and so America Online, CompuServe, and GENie have developed special email gateways to the Internet (Prodigy has yet to follow suit, but they have announced plans for a connection). While you still cannot use the FTP (file transfer protocol - downloading files), and Telnet (remotely logging on to a computer as though you were at its location) facilities, you can reach the brain power of the Internet - millions of people.

We will look at three commercial services, America Online, CompuServe, and GENie, and a new email service called WorldLink.

AMERICA ONLINE (AOL)

America Online is the new kid on the block of information services, opening its online doors in 1988. AOL

is for users of Apple, Macintosh, and PC compatible computer users and sports a great graphical interface for all platforms. Users of all experience levels, from novice to pro, can navigate easily using windows, pull-down menus, and the "point and click" method using a mouse.

AOL has hundreds of forums, downloadable files, special interest groups, news, and more to keep the average onliner happy. It currently has about 200,000 members.

Sending Mail to the Internet

On AOL, sending mail to a user on the Internet is as easy as sending mail to anyone on AOL. There really is no difference and there is no extra charge. The user selects a blank page from the mail menu and inserts the user's Internet ID into the destination (TO:) box.

For example, if I wanted to send some mail to myself at my university address, SUNY at Albany, New York, I would address the mail like this:

drittner@uacsc1.albany.edu

"drittner" is the user id at my Albany mailbox, the @ (at) symbol separates the user id from the actual destination which in this case is the SUNY mainframe — domain id is "uacsc1.albany.edu."

That's all there is to sending email to the Internet on AOL. All of the magic of sending to the Internet is done invisibly by AOL.

Now there are some restrictions. Outgoing mail cannot be larger than 32k (about 4500 words or 4 pages). On the Mac, Apple II, and PC-Link versions, you cannot receive mail larger than 27k, the rest will be truncated. On the PC version of America Online, and Promenade, incoming mail cannot be longer than 8K. Any text beyond 8K will be truncated. So, this means you cannot subscribe to Internet discussion lists or attach files.

If for any reason your mail does not make it to the destination box, it's returned along with your actual text.

Receiving mail to AOL

To receive mail from the Internet or other commercial services, to your mailbox on AOL, the sender must know your AOL id and attach it to AOL's domain id which is "aol.com" — pretty easy. So if you wanted to send me mail you would address it to:

drittner@aol.com

drittner is my AOL id, and aol.com is AOL's domain id.

COMPUSERVE (CIS)

CompuServe Information Service (CIS), is the mother of all online services with 1,400 databases, some 170 forums, and some 1.1 million subscribers.

It's easy to navigate through CIS's forums and services. CIS is menu driven but there are shortcuts to save time. To go to any of the services, CIS uses keywords combined with "Go." So to get to the mail area, for example, you type "Go Mail."

Sending Mail To the Internet

To send a message to an Internet address, you write or upload an ASCII text file of no more than 50,000 characters or 1000 lines using the CompuServe Maileditor. Each 2,500 characters is about one double-spaced page.

Unlike AOL, you must use a special addressing format to send to the Internet. When you are ready to address your mail to the recipient you need to add >INTERNET: before the recipients ID.

To send me mail from CIS to my university ID it would look like this:

>INTERNET:drittner@uacsc1.albany.edu

If your message is undeliverable, it usually will be returned to you along

with the text of your message. Whether the message text is actually returned to you depends on the remote mail system, but you will always receive notification if your message cannot be delivered.

Receiving Messages From Internet to CIS

Only ASCII (text only) messages up to **50,000** characters can be sent through the gateway.

When an Internet member wants to send a message to you they should know:

- Your User ID number with the comma changed to a period.

- The CompuServe domain address which is "**compuserve.com**"

To send me mail on CIS, (my id is **70057,1325**), it would look like this:

70057.1325@compuserve.com

Notice the comma has been changed to a period in my id.

Receiving messages from Internet is charged the same as sending Mail for members on the CIS' Standard pricing plan, and the cost applies toward your monthly Mail usage allowance. There is no additional cost (other than connect time charges) to receive/read messages from Internet for members on the alternative pricing plan. So the most you will pay for reading Internet messages under the standard pricing plan (**\$7.95/month** for basic services and an hourly rate for extended services) is .15 cents for the first **7,500** characters, and .05 cents for each additional **2,500** characters.

GENIE

GENIE (General Electric Network for Information Exchange), is a commercial online service owned and operated by General Electric since 1985. GENIE has over **190,000** subscribers and offers mail, special interest groups, online shopping and travel,

games, live conferences, computer user group "roundtables," clubs and software.

GENIE is also menu driven and you can use keywords to save time. You simply type the keyword at the prompt, i.e. "**Mail**" to get to the mail prompt, or you can use the page number with the word move, i.e. "**Move 200.**"

Sending Mail to the Internet

GENIE is similar to CIS in that you add an extension onto the user ID of the person you are sending mail to. So, if I were to send mail to my university account, it would look like this:

drittner@uacsc1.albany.edu@INET#

The **@INET#** tells GENIE that the mail is destined for the Internet.

Receiving Mail from the Internet

Likewise, if you want someone to send you mail from the Internet to your GENIE mailbox, they need to know GENIE's Internet ID which is "**genie.geis.com.**" So to send me mail you would address it as:

MNS@genie.geis.com

"**MNS**" is my user id on GENIE and "**genie.geis.com.**" is GENIE's Internet domain ID.

You can avoid using the extension of **@INET#** by going into a special Internet mail area by typing "**Internet**" at the prompt.

Once you enter the Internet area, you can send Internet mail by choosing item 4 on the Internet main menu. This brings you into a special text editor.

All you need to do in this text editor is write the user's Internet ID without any extensions, i.e. **drittner@uacsc1.albany.edu**. This special Internet mail area takes care of directing the mail to the Internet. Sending and receiving Internet Mail on GENIE has a surcharge. There is a

\$2.00 registration fee - this is a one time charge for all new users signing up for the service. However, if a user cancels and signs up again, another **\$2.00** is charged.

Additionally, there is a charge of **\$.30** for each **5000** bytes or portion thereof for both outgoing AND incoming messages.

Canadian Rates are **\$3.00** registration fee and **\$.40** for each **5000** bytes or portion thereof for incoming or outgoing messages.

WORLDLINK

Not everyone is member of AOL, CIS, or GENIE, so what do you do now? There is a new service called **WorldLink** from InterCon Systems Corporation in Herndon, Virginia that fills the void.

Worldlink is a special service for PC and Macintosh computer users that gives you a front end to the Internet using your own PC. You simply call one of thousands of access lines (in over five countries) to log on. InterCon offers two flavors - Worldlink-Email and Worldlink-Basic.

The email version gives you off-line and batch reading and creation of email. This allows you to compose your text and the software then sends it, picks up any mail waiting, and then logs off, saving money. There is a flat rate of **\$19.00** per month (2400 bps) with no limited usage charges. For 9600 bps access, it's **\$29** per month.

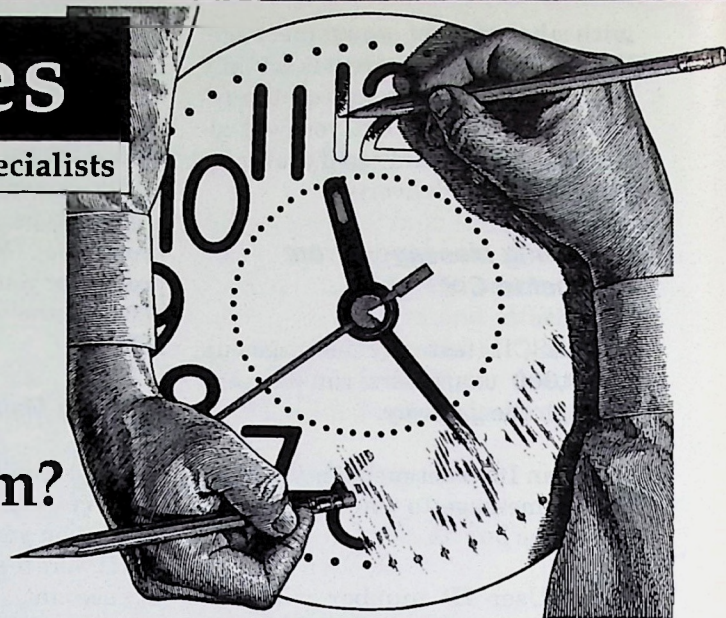
The Basic service gives you the email features but also gives you **FTP**—file transferring capabilities, and **Usenet news**—thousands of conferences on a variety of subjects from Art to Zoology. As of this writing, only the PC version has Usenet access. January 93 is the target date for the Mac version.

The Basic service is also done in real time, so you stay connected to the network to send and receive mail, transfer files and view the Usenet

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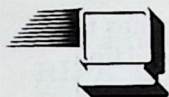
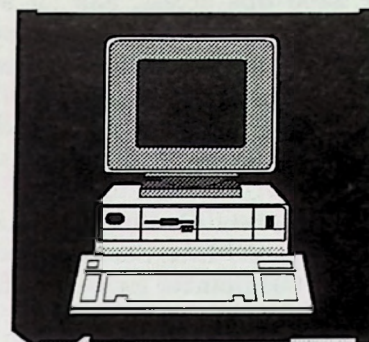
While our main business is the sales and support of TBBS/TDBS systems we find we have all the necessary software in place to market and support any software, regardless of the market it is targeted to. If you have an MS-DOS based software package you would like to market, please give us a call. We know we can help you increase your income, we've been doing it for our associated TBBS/TDBS programmers for years! If you have a "user supported" software package and feel it can do better commercially we would like the opportunity to help you be successful. For more information just call!

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TBill will track time used in a TBBS system by the separate billing classes available in TBBS and create invoices to bill your clients (users) for the time used on your system. TBill allows each TBBS billing class to be charged at a different rate, generates a simple generic invoice for your occasional billing needs, creates an ASCII file of all invoices for off-line printing, etc. Your entire monthly billing can be as simple as a 3 keystrokes.

GO-2 User Interface

GO-2 is the program for all who want or need a SIMPLE user interface. GO-2 has a "point and shoot" interface for ANSI users, all they need do is use the cursor keys to highlight the activity they want and hit the <Enter> key. It just doesn't get any easier! It can be used with or without menus and was designed to be extremely flexible and to allow SysOps to make the navigation of a BBS so simple that anyone can do it quickly and easily! No longer do you have to worry about whether your users and customers are "computer literate"! You could easily set up an entire system using only GO-2. Think of it, a TBBS installation with ONE menu and ONE call to GO-2! With TBBS, TDBS, GO-2 and the TBBS manual you can quickly easily install a complete system. And with the help files within GO-2 you might not even need the manual!

Simple NAPLPS Graphics Interface (SNAP)

With SNAP you can integrate NAPLPS (North American Presentation Level Protocol Syntax) graphics menu and file displays with all your standard TBBS menus. Using TBBS's {filename.ext} menu calls and macros for other menu directives, you can fully implement a NAPLPS graphics user interface quickly and easily. Simply edit and compile the included files. SNAP comes with sample .SDL, .QAL, .NAP, and all necessary NAPLPS initialization files. TDBS is NOT required.

Entertainment Software

We have dozens of games and other entertainment software available, including the all new The Wild Side (Interactive Adult Adventure), Video Poker, and Chain Links (an addictive word chain puzzle). If you are interested in arcade games, word games, games of chance or adventure games for your TBBS/TDBS system we have them at prices from \$29.95 to \$169.95.

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news. There is a monthly fee of \$29 for 2400 bps access, \$39 for 9600 bps. You are allowed 50 megabytes per month and an additional charge of \$1 per meg if you exceed the fifty. InterCon may have Telnet capabilities in the future.

For those who do not have a local access point, InterCon will shortly have a 800 number for a small fee.

Happy Trails

So there you have it. Internet access to millions of people without really worrying about having a direct connection, and in the case of CIS and GEnie, for very little extra cost. Of course, if you still want to remote logon, subscribe to Internet mailing lists and bulletin boards, you need to get a "real" connection (more about that in future columns). And you still need to know the Internet id of the person you want to correspond with. There is no master Internet telephone book to look up names yet — but give it time.

For further information about any of these services, contact them at:

AOL: Call 1-800-827-6364
CIS: Call 1-800-848-8199
GEnie: Call 1-800-638-9636
Worldlink: Call 1-703-709-9890

[Don Rittner is the author of EcoLinking: Everyone's Guide to Online Environmental Information (Peachpit Press, 1992), and is the editor in chief of MUG News Service (MNS), a computer news service that reaches 350,000 computer users worldwide. He is the SYSOP for three forums on America Online: The Environmental Forum, the User Group Forum, and the Society for Environmental Journalists Forum. He has been running the MNS ONLINE BBS (518)381-4430 for ten years. You can reach Don at afldonr@aol.com, anytime (he lives there) - Editor] #

INTERNET NEWS

CCITT DOCUMENTS AVAILABLE BY INTERNET MAIL

The International Telecommunication Union (ITU) was founded in 1865 and as such is the oldest inter-governmental organization. In 1947, it became a specialized agency of the United Nations and has a membership of 174 countries (4 November 1992). It is the international organization responsible for regulation and planning of telecommunications worldwide, for the establishment of equipment and systems operating standards, for the coordination and dissemination of information required for the planning and operation of telecommunications services, and for the promotion of and contribution to the development of telecommunications and the related infrastructures.

For the online world, the Consultatif Committee International Telephone et Telegraphique (CCITT) is the standards body under ITU that establishes recommendations for data communication. The CCITT V.22bis standard describes 2400 bps modem connections for example, CCITT V.32 does the same for 9600 bps connections, and CCITT V.32bis handles 14,400 bps connections. The V.42 standard covers error correction for modems while V.42bis describes the data compression standard widely used in modern modems.

Last November, the ITU announced it would make a wide range of ITU documents available online via the Internet - including CCITT standards. The service is called TELEDOK and it is actually a mail server that will respond to e-mail requests for documents by mailing back the electronic text of the standard requested. It will work through either Internet or X.400 mail.

The full texts of all new and revised CCITT Recommendations (i.e. all standards approved after the publication of the Blue Book in 1988) will be available from TELEDOK. In line with ITU publications policies, it is envisaged to expand TELEDOK information base according to identified needs and available resources.

On TELEDOK's first day of operation, ITU Secretary-General Pekka Tarjanne stated: "The impact of the changing telecommunications environment makes it imperative that the ITU develop new approaches to the standardization process and find new ways to improve the efficiency of our work, new ways to disseminate the output of our work throughout the world. The implementation of TELEDOK", he said, "is undoubtedly a right step in this direction. Our ultimate goal is to make available online an entire library of ITU documents for a broad and transparent information exchange with all categories of interested users".

The Internet mailing address of this auto-response mail server is teledoc@itu.arcom.ch

Document formats which are planned to be made available include ASCII, Microsoft RTF, Word for Windows, Postscript and CCITT ODA/ODIF. TELEDOK will be available on request, on a trial period of one year, at no access cost. For more information or to obtain a copy of the user's guide, contact: Mr. Robert Shaw, TELEDOK Project Coordinator, Information Services Department, International Telecommunication Union, Place des Nations, 1211 Geneva 20, Switzerland, +41 22 730 5338 voice; +41 22 730 5337 fax; Internet: shaw@itu.arcom.ch

by Milan Sterba
(Milan.Sterba@vse.cs)
As of November, 1992

This article is based on work of the **RIPE Connectivity Working Group**. It summarises the main issues of international connectivity of East and Central European countries (ECE). It is based on reports and information gathered by network representatives of these countries, who have been present at the meetings or contacted on other occasions.

This report contains lists of people who are responsible for international networking in each of their countries and gives as detailed as possible description of the various network activities in the East and Central European countries. The sections for particular countries will be subject to regular amendments or changes.

Considerable progress has been made during the last year in IP connectivity of ECE countries. Czechoslovakia and Poland have today, several hundreds of connected hosts each and are the most advanced ECE countries with respect to IP connectivity.

Bulgaria, Estonia and Hungary do also have IP connectivity today and have several tens of connected hosts each. By the end of 1992 IP connectivity will probably also reach Latvia and Lithuania through NORDUnet and maybe also Romania and one of the CIS republics.

In all the connected countries the initial capacity of international lines has rapidly become insufficient and it has been sought to

upgrade existing lines and set up reasonable backup solutions. Internetworking is rapidly spreading and good IP connectivity is considered the first priority by the national academic network organizations.

All the countries considered have at the present time some (often more than one) connection to international networks. Certain countries have only a dial-up e-mail connectivity, others have low or medium speed leased lines. RIPE broadly contributes to this rapid evolution by providing technical advice and coordination efforts.

An electronic mail connection used to exist between the University of Tirana and the Internet. The gateway and relay function resided at CNUCE, Pesco, Italy. This connection seems not be operational any more.

Maxim Raco <maksi@dinf.uniti.al>
- University of Tirana
Francesco Gennai
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All three Baltic countries have a plan to develop Research and Education Networks, called respectively ESTNET, LATNET and LITNET and the Baltic backbone BALTBONE should link them together (Kaunas, Vilnius, Riga, Tartu, Tallinn) and to the global Internet via NORDUnet. A LISTSERV mailing list exists for this purpose:
(**NORDBALT @searn.sunet.se**).

Estonia works in close co-operation with NORDUnet in setting up external IP links. Currently a 64 kbits/s IP satellite link is operational between Tallinn and Stockholm, and between Tartu and Stockholm. These lines connect the Baltic backbone network (BaltNet) to the rest of the Internet. Another 64 kbit/s IP line is operational between Tallinn and Helsinki.

Inside Estonia IP links are currently planned between the Institute of Cybernetics and the University of Technology in Tallinn and the Tartu University.



Contact persons:

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LATVIA

An international 14.4 kbit/s IP line connects the Institute of Informatics and Computer Science of Latvian University in Riga to the Institute of Cybernetics in Tallinn, Estonia. This line is part of the Baltic backbone network (BaltNet). Other networks active in Latvia have only dial-up connections (FidoNet to Tallinn and Helsinki, RELCOM to Moscow).

Inside Latvia X25 services are available from the public X25 network Latpak and Sprint, UUCP services are available from JET, Versia and Robosoft, the Latvian partners of RELCOM-EUnet. FidoNet also is very active.

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Alexander Kirpa <ank@robosoft.riga.lv> - Robosoft Ltd.

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- Institute of Electronics

Dmitry Sazonov <dima@jet.riga.lv>

- JET (RELCOM Riga)

Janis Sudnieks <john@versia.riga.lv> - Versia Ltd.

LITHUANIA

A dial-up EUnet connection exists between Vilnius and Helsinki (Finland). A 9.6 kbit/s X.25 link, used for X.400 electronic mail and sponsored by Norwegian Telecom, exists between Vilnius and Oslo (Norway).

Contact persons:

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- Institute for Mathematics, Vilnius

BULGARIA

A switched international X.25 connection connects the Bulgarian EARN node in Sofia to Linz (Austria). A dial-up connection over public X.25 connects the Bulgarian EUnet via the backbone node in Varna to the Internet via the EUnet node in Heraklion (Greece). This connection will be converted to IP/X25

and will be the first IP connection in Bulgaria. Coordination between both projects, resulting in a shared fixed IP connection, is under study.

Several tens of EUnet sites are now connected over dial-up links to the national EUnet backbone. A public X25 service is available to a limited extent. EARN services have been opened recently at Sophia University but no gateway exists between the two services yet.

Contact persons:

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- EUnet backbone manager, contact for BG top level domain

Anton Velichkov <vam@bgearn.bitnet>

- EARN president for Bulgaria

Alexander Simeonov

<sasho@bgearn.bitnet>

- Center for Informatics, Sophia

COMMONWEALTH OF INDEPENDENT STATES.

Dial-up connections between Helsinki (Finland) and Amsterdam (Netherlands) on the one hand, and Moscow on the other hand connect the RELCOM network in Russia and a few other former USSR republics to the Internet. Currently the services consist of electronic mail and Network News. A medium speed IP line to Amsterdam is planned in the near future. Recently another 14.4 kbit/s IP link has been put between Moscow and AlterNet (USA). On this link only SMTP traffic is allowed. A 4.8 kbit/s leased line between Moscow and DESY, Hamburg (Germany), supporting IP, delivers HEPnet services to two research institutes in Moscow. Low speed links between Moscow and ESOC (Germany) and CNES (France) serve the space physics community. All existing IP links to CIS have full connectivity only to the European part of Internet. The 9.6 kbit/s leased line from Moscow to Copenhagen which used to connect the EARN node in Moscow to the EARN/BITNET network has been replaced by a dial-up link to Stockholm due to funding problems.

A considerable effort undertaken by the RELCOM networking organization has brought e-mail connectivity to several thousands of sites all over the former Soviet Union. The growth of the network was several 100% a year. RELCOM has been operating some IP links in the Moscow and St. Petersburg areas and some other places (Novosibirsk, Barnaul in Altai). Other national IP connections are expected to connect Ukraina, Siberia, St. Petersburg, Far East and other regions in order to setup a kernel of a nation wide IP backbone. The whole network has some 60 regional centres, some of which connect more than 500 sites. RELCOM's international traffic is split over two dial-up lines, one to the Finnish EUnet backbone and one the central EUnet node in Amsterdam. Both operate as gateways on application level. The rapidly growing volume of international mail traffic makes the need for a medium speed IP channel to Europe an urgency. Part of the international traffic is carried by the filtered IP line to AlterNet.

The first EARN node started its operation in Moscow late in 1991, but the spreading of EARN services is still expected. An e-mail gateway now exists between RELCOM DEMOS and SUEARN. SUEARN also provides the international mail relay services for FREENET, a national research IP network which interconnects some 45 institutes of the Academy of Sciences mostly in the Moscow area with international connections to Jaroslavl and Baku.

The current situation has been badly affected by the split of RELCOM into two independent entities (RELCOM RelTeam Ltd. and RELCOM DEMOS). Each of them holds a part of CIS network users and part of international connectivity. While RELCOM RelTeam Ltd. has inherited the RELCOM's membership in EUnet, RELCOM DEMOS seems to position itself as a partner of AlterNet in CIS. Negotiations are still underway to find a cooperative approach to national and international connectivity.

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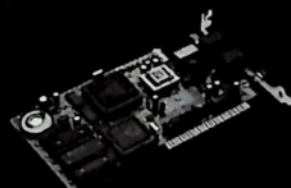


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In July 1992 an official decision has been taken by the Ministry of Science and Higher Education, the Academy of Sciences and the Russian Scientific Center (Kurchatov Institute) to form the Russian Electronic Academic and Research Network (RELARN) which will use RELCOM as transport infrastructure.

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CZECHOSLOVAKIA

A 64 kbit/s IP link between Prague and Linz (Austria) is operational today. The line is full IP carrying general IP, EARN and czech EUnet traffic. A second link, 19.2 kbit/s between Bratislava and Vienna is shared between EUnet traffic and general IP traffic and IXI. The upgrade of this link to 64 kbit/s is planned for the near future. Both links connect into the upcoming national academic backbone networks CESNET (Czech Educational and Scientific Network) and SANET (Slovak Academic Network). Both networks are interconnected with IP links with the aggregate capacity of 28.8 kbit/s (19.2 kbit/s IP link between Prague and Bansha Bystrica and 9.6 kbit/s Prague-Bratislava). Another 64 kbit/s link should connect CESNET and SANET to IXI and the future EMPB. This line, financed by EC PHARE project for one year, will connect Prague to Amsterdam.

Both CESNET and SANET are now setting up national backbone infrastructures connecting major academic towns in the country. 64 kbit/s lines are used wherever available and considered necessary, 19.2 kbit/s on all other links. The first protocol supported is IP. Connected to the

backbones are appearing metropolitan networks in major cities.

The major coordinating bodies are CESNET and SANET where universities as well as Academy of Sciences, EARN and EUnet are represented. A good cooperation exists between both separately funded projects as well as good cooperation with AConet, EARN, EUnet, WIN, INRIA France and others.

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Milan Sterba <Milan.Sterba@vse.cs>
- author of this report, CESNET

HUNGARY

Hungary is connected to EARN by a 9.6 kbit/s IP line between Budapest and Linz (Austria). For the time being the same line is used also for the Internet and EUnet connection. It is planned to upgrade this line to 64 kbit/s in 1992. The High Energy Physics community has access to HEPnet services via a 9.6 kbit/s leased line between Budapest and CERN, Geneva (Switzerland) which is now running IP.

Hungary has a good operational public X25 network which is the base of Wide Area Networking between small and medium sized sites. Currently there are about 250 X.25 access points in the country. A high speed national IP backbone (called HBONE) will come into production in 1993 to provide a country wide IP connectivity and access to EBONE services.

In Hungary a national program

under the title "R&D Information Infrastructure Program (IIF)" is responsible for the research networking. The "HUNGARNET" co-ordinates the networking activities of different user groups, such as "HUNINET" (Universities and high schools), "AKANET" (academic research institutes), and the user group of public collections (libraries, museums), meanwhile part of the funding goes through IIF.

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- EARN president, chairman of HUNI-NET

POLAND

The main external connection consists of a 64 kbit/s satellite link between Warsaw and Stockholm (Sweden). The link is an IP one and carries all Internet, EARN and EUnet traffic. A new 64 kbit/s IP link is being set between Warsaw and Vienna with the objective to set up an Ebone Boundary System in Warsaw. A 9.6 kbit/s IP connection is in place between Krakow and CERN, Geneva (Switzerland) for HEPnet services.

Public X25 services have only started in 1992. Thus connections at national level can only be implemented on switched or leased lines. The country already has an infrastructure of leased lines, shared between EARN and IP traffic operating at speeds between 9.6-64 kbit/s.

The Polish network is coordinated by an organization called NASK (National Academic and Research Network) which also includes the Polish part of EARN. Realistic plans exist to substantially extend IP connectivity over the territory in 1992 using 64 kbit/s lines on their national backbones wherever possible and economically viable. A Na-

tional Network Operation and Monitoring Center has been set up in early 1992 which operates the whole national and international infrastructure. A system of network user training and support has also been put in place.

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ROMANIA

International connectivity is now provided by a switched X25 link to EARN in Austria. A 9.6 kbit/s leased line is planned before end 1992 between Bucarest and Linz (Austria). This line will be able to carry both IP and EARN/NJE/BSC traffic.

Romania has poor internal networking infrastructure. A government project of building a public X25 network is under commercial negotiations and should start to offer some services in 1993.

In Romania the emerging networking activities seem to be coordinated by the National Council for Informatics and the Polytechnic Institute of Bucharest.

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 - Polytechnic Institute of Bucharest

SLOVENIA

Slovenia is connected over a 64 kbit/s IXI access point in Ljubljana to the IXI backbone. Over this connection an IP link via NIKHEF, Amsterdam (Netherlands) provides Internet connectivity. A PSDN X25 connection connects the main EUnet node in Ljubljana to EUnet. Another IXI ac-

cess point, also located in Ljubljana, connects Croatia, Bosnia and Herzegovina to IXI over the JUPAK PPSDN.

Currently Slovenia have achieved a good degree of capillarity of their national networks due to the existence of a wide spread public X25 network. There exists a well developed X400 service. In Slovenia the Academic and Research Network of Slovenia (ARNES) is coordinating network activities. In Croatia the coordinating organization is CARNet and both organizations co-operate.

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SERBIA AND MONTENEGRO

Serbia has had a 9.6 kbit/s leased line between Beograd and Linz to carry EARN traffic. Currently this line is cut according to a decision of the Austrian government about the UN embargo of new Yugoslavia. 2

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MACEDONIA

The University of Skopje, Macedonia was recently appointed by the Ministry for Science and Technology to start the networking activities in the country. They joined CEEC and they are planning soon an IP connection.

Currently Macedonia have achieved a good degree of capillarity of their national network (DECNET) due to the existence of the public X25 network which is a part of JUPAK PPSDN.

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All the ECE countries are very interested in European as well as world wide IP connectivity. In Czechoslovakia, Hungary and Poland there has been rapid growth of connected IP networks and hosts in the academic community. Their existing international leased lines infrastructure is now shared by EARN, EUnet and raw IP services. Linz University and ACONET in general (Austria) has become an important concentrating point for Bulgaria, Czechoslovakia, Hungary as well as Poland and Romania.

The financial resources dedicated to networking in these countries are limited. The sharing of the existing national and international leased lines between EARN, EUnet and other IP traffic as well as between academic and starting commercial traffic is thus a very important issue. Lightweight but robust IP gateway solutions (over dial-up lines, leased serial lines or X25 networks) are of great concern in this respect and are continuously studied and further developed (e.g. COPERNICUS).

By the end of this year the Budapest-ACONET link at least will be operating at 64 kbit/s. It is probable that new IP lines will be operational at this time (Bratislava-Vienna, Moscow- Amsterdam).

In the same time the national infrastructure of the countries will also evolve. We can expect an increase in national coverage in countries with working public X25 networks and in Czechoslovakia and Poland as well as strong increase in IP connectivity in the CIS.

Several international support initiatives have been launched in the past by different bodies to improve international network connectivity of the Central and Eastern European countries. The following list presents some of them:

The Ebone 92 consortium has shown itself very supportive during 1992 by allowing traffic of ECE countries to pass freely over the Ebone and

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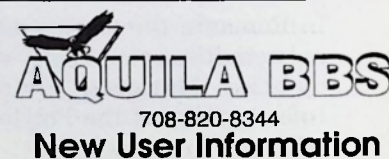
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The AQUILA BBS Team (Left to right: Kevin & Kristy Behrens, Steve Williams, Chris Babb)

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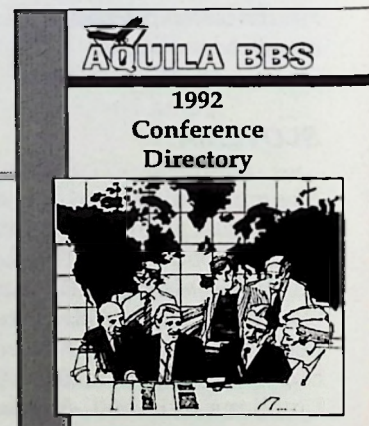
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letting so the ECE countries traffic cross Europe. This situation will change in 1993 when Ebone will use a more formal financial model.

RIPE and the RIPE NCC have widely contributed to the rapid integration of new ECE networks into the global Internet. RIPE has acted as an initiator of a common coordination effort of academic networking organizations in Bulgaria, Czechoslovakia, Hungary and Poland. A first coordination meeting has been held in Prague in february 1992 and a successful cooperation has started since, continued on 3rd Joint European Networking Conference in Innsbruck, where RARE has proposed to be the coordinating place on ECE integration to european academic networking and another meeting in Prague in August. CEEC@RARE.NL is now the focusing mailing on common ECE networking issues.

Also both EARN and EUnet have widely contributed to the successful start of international networking in ECE countries, by placing the first network nodes to these countries, supporting the activity of these nodes both financially and by extensive knowhow transfer.

Despite this expressed cooperation willingness (RARE, PIPE, EARN, EUnet etc.) we can see uncoordinated support efforts which sometimes lead to wasting of poor disposable resources. An EC PHARE project dedicated to extend the former COSINE IXI project to Bulgaria, Czechoslovakia, Hungary, Poland and Romania has started this year. Medium speed 64 kbit/s lines have been ordered between Amsterdam-Prague-Budapest-Bern and between Aarhus-Warsaw-Bern. These lines initially financed by the EC should provide connectivity from ECE countries to the planned European Multiprotocol Backbone (EMPB). It should provide access points to X25 as well as IP services. Unfortunately the coordination with RIPE and Ebone as well as with academic networking organizations in the countries involved has been up to now very poor resulting in uncoordinated

doubling of parts of the scarce infrastructure in ECE countries.

Austria is the major relay point between ECE countries and Western Europe (and further). The Austrian government is very supportive and either covers fully or participates in a significant manner to costs of international connections to these countries. In february 1992 ACONET has made an even larger proposal, offering these countries (Bulgaria, Czechoslovakia, Hungary and Poland) double connectivity to both Vienna and Linz. Each of these countries should have one link to both places, thus permitting line backup. The Vienna-CERN line has been upgraded in October 1992 to 256 kbit/s and the Linz-CERN line (64 kbit/s) is being replaced by a Linz-Amsterdam line (128 kbit/s) in order to accommodate traffic increase from these countries and offer a real backed-up connection to Ebone. The ACONET proposal for Ebone 93 to place an EBS to Austria seems well justified from the point of view of ECE countries connectivity.

CERN plays also an important role in the IP connectivity of the new countries. It houses actually a 9.6 kbit/s line from Krakow and another HEPnet 9.6 kbit/s line from Budapest. Due to lack of resources CERN prefers not to house a lot of low rate lines from every country but rather to house a higher rate line concentrating traffic from several countries. This is in fact perfect conformance with the ACONET proposal.

The German DFN network has launched several regional initiatives to connect sites in geographical proximity to Germany (e.g. Dreilaenderack project connecting Liberec in Czechoslovakia, Wroclaw in Poland and Zittau in Germany using leased links based on X25 with further connectivity to DFN). DFN also provides X400/SMTP gateway for Slovenia.

The Italian government has financed in 1990 and 1992 successful net-

work workshops (NetSchool) to which about 50 network specialists from ECE countries have attended. A second extended edition of NetSchool has taken place in April 1992 with participation of network specialists from RIPE and attendees from ECE countries, some South American, Asian and African countries.

A similar event has been organized by NORDUnet for network users and operators from the Baltic states.

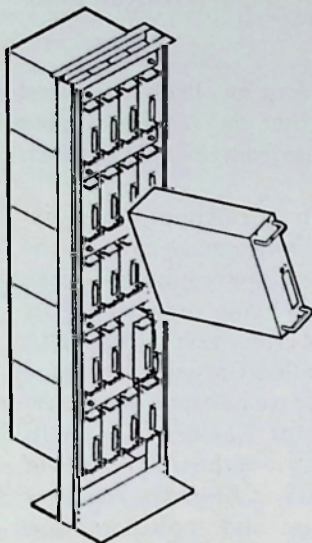
The French government has expressed its willingness to help the integration of new countries to the world of academic networking by launching in cooperation with INRIA a project called Copernicus, which aims to improve network connectivity of several Eastern European Countries. One of the first results of this project has been the cooperation on design and implementation of the academic IP backbone CESNET-SANET (Prague - Brno - Bratislava, Banska Bystrica - Kosice) in Czechoslovakia. The project consists of network management and administration know-how transfer, common development of tools and some software and hardware donations. A similar activity is now starting with Romania.

IBM is also present in these countries with its academic initiative in which IBM mainframes have been offered to Czechoslovakia, Hungary and Poland. IBM and EASInet act also as sponsors for the T1 US link usage for academic networks in Czechoslovakia, Hungary, Poland and Slovenia.

Strong support to ECE countries integration into the global network also comes from the United States. NSF has always been very supportive to academic networks in ECE countries promptly helping them to solve the global connectivity problems. Many projects aiming at improving local, national and international infrastructure, knowhow transfer and mission oriented network applications are now in progress.

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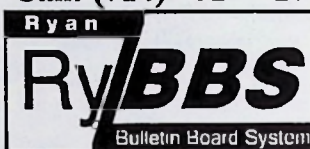
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The assistance of countries with developed networking shouldn't be uniquely oriented to basic network connectivity. A lot of work is to be done in the ECE countries to offer and improve higher level network services like e-mail, teleconferencing, archive services, online databases and library catalogues etc., as well as in basic network concepts, user information services and advanced networking know-how transfer. That's why new EC projects proposals are now oriented not only on infrastructure but also on higher level services (e-mail, electronic directory, user information and training). Lack of funds is extremely disadvantageous and the exchange rates still make it difficult for ECE network experts to attend international network events.

As already mentioned, distributing international network access over the local territory is a major problem for the countries considered. While it is relatively easy and cheap to set up a

local TCP/IP network it is more difficult to connect it to the national access point. Generic router solutions are rather expensive on one side and not completely free of administrative exportation problems for all countries involved.

The solution to these problems are software routers based on PC's or workstations and public domain or easily available software.

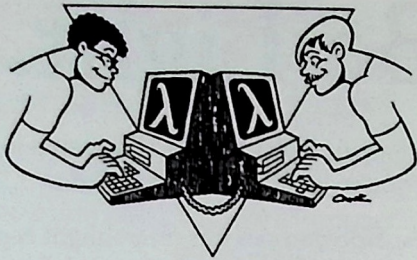
A low cost capillarity of networks being of great importance to ECE countries, good dial-up IP solutions both industrial and public domain, which are under study and evaluation in EUnet, RIPE, Copernique, NetSchool and others, are of great interest as well as low cost IP solutions on synchronous lines (X25 or PPP) and low cost solutions for network monitoring and management.

The technical speed limitations for international leased lines seem now

to become less restrictive than in the past. For Czechoslovakia, Hungary and Poland, international links up to 2 Mbit/s are now feasible.

With the basic connectivity problems being progressively solved the network services are now becoming major issues in the most advanced ECE countries. PC's remain the most spread technical basis, thus network solutions based on this platform (routers, mail, news, archive and information servers and clients) either Unix or MS DOS oriented are of major concern today.

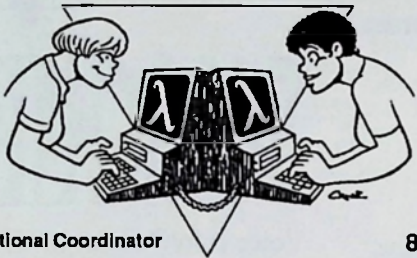
The starting period in international networking is often characterized by a fuzziness in the organizational structure together with a lack of information about the people actually responsible and working in the area. The situation is nearly stabilized in Croatia, Czechoslovakia, Hungary, Poland and Slovenia, where national academic networking groups



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have been founded and are coordinated with EARN/EUnet activities, and a coordinated effort tends to build nation wide multiprotocol academic network infrastructures. A similar effort is underway in Bulgaria (UNIKOM, EARN and EUnet Bulgaria). These countries seem also to have found a stabilized position in international network organizations (EARN, EUnet, RARE, RIPE). The situation is more complicated in other countries where also international contacts are for various reasons much more scarce.

[Milan Sterba serves in the Prague School of Economics Computing Center in Prague Czechoslovakia and can be reached at milan.sterba@vse.cs. The full text of his report on Central and Eastern European Networking, along with a number of other RIPE information files can be obtained via anonymous ftp at ftp.ripe.net in the subdirectory /ripe/dics/ripe-docs. - Editor]

PGP PERSONAL ENCRYPTION PROGRAM 2.1 VERSION AVAILABLE

Among those who perceive electronic privacy as a serious problem, one of the most powerful tools available in the battle is an encryption program titled **Pretty Good Privacy** - originally written by Philip Zimmermann and currently the darling of an international group of programmers.

PGP allows anyone to encrypt electronic communications using the public key process. Using this technique, you can freely distribute your public key via the network and anyone can write a message to you and encrypt it with your public key. Only YOU can decrypt the message using your own private key, which of course you do NOT distribute. The program provides for key "ring" database allowing you to manage large numbers of other people's public keys - so you can encrypt and send mail to them. Using this public key system, you can

establish encrypted communications among a large group of correspondents.

The program uses some pretty advanced encryption techniques, and the keys are actually encrypted using the RSA algorithm widely considered among the most "uncrackable" in the industry. It's unlikely that the National Security Agency itself could decode a message encrypted with the higher levels provided with PGP.

The program has a number of other aspects. The source code is distributed with it. It is free, public domain software with no registration or license fee. And there is some question as to whether it is legal or not within the United States.

PGP enthusiasts announced in December that the latest version 2.1 has been released. The new version can perform some tasks beyond just data encryption. It can also be used to develop digital "signatures" for message authentication. You can

create a signature and anyone with your public key can verify that it is indeed your signature, but it would be almost impossible for someone else to "forge" your signature. By appending this electronic signature to the end of your messages, you can ostensibly end any debate about whether it was you who wrote it. The new version allows you to send e-mail via an unencrypted message without putting the whole message in the Radix-64 encrypted format so that anyone can read it. The new version is also a bit faster, and eliminates several minor, but annoying bugs. Proponents claim it is the world's most popular and politically controversial public key encryption program available. We can't make a case against this claim.

The program is available for ftp from Finland at [nic.funet.fi](ftp://nic.funet.fi) (128.214.6.100) in the `/pub/unix/security/crypt/` subdirectory as **pgp21.zip** and **pgp21src.zip**. It's also available from Italy by ftp to [ghost.dsi.unimi.it](ftp://ghost.dsi.unimi.it) (149.132.2.1) in the `/pub/security/` directory. Hugh Miller is maintaining

a list of other sites and bulletin boards where PGP21 is available and Miller can be reached at hmliller@lucpul.it.luc.edu. And of course, for subscribers to the Boardwatch BBS, the program is available in the Internet file directory.

BBS CONNECTIONS TO THE INTERNET

The Internet is shaping up as the common e-mail backplane for the world. If it never does anything else, adoption of the domain naming system for addressing electronic mail - coupled with the burgeoning critical mass of electronic services reachable via Internet mail on a global basis, has provided the locus to tie thousands of e-mail islands into a single loose network for electronic mail delivery.

But the Internet proper, and significantly most of the regional networks providing access to the Internet, has

neither the resources nor a clue as to how to make access to the Internet extend effectively to K-12 schools or individuals. Some tools are becoming available to make it easier for the handful that stumble upon them. But for the vast majority of online callers, the Internet is going to look remarkably like part of CompuServe, Prodigy, or their local BBS - for good reason. They need not go "to the mountain". Increasingly commercial online services and existing bulletin boards are bringing the crucial rubble of the mountain to their callers instead.

Bulletin Boards across the country are struggling to connect to the Internet in ways large and small. For the purposes of discussion, we've mentally cut Internet connectivity into three broad groups: **full IP connectivity**, **dialup IP**, and **dialup UUCP**.

Full IP connectivity describes the process of connecting a local area network or bulletin board to the

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Internet using the **Internet Protocol** (IP) and a permanent physical link - typically a leased telephone line with a data capability of 56 kbps or T1 at 1.44 Mbps. Nearly 7000 networks worldwide are connected to the Internet this way and it has a number of advantages. Internet users worldwide can **telnet** or **ftp** into such a site at little or no cost, files can be transferred, databases accessed, and so forth. The attraction for bulletin boards to be connected in this fashion is obvious. But most actual bulletin boards on the Internet directly are subfunctions of some organization. Independent BBSs connected in this fashion are rare - largely due to the costs. The leased line typically runs \$300 to \$700 per month. This type of connection requires a device termed a router that costs \$3000 to \$5000. Finally, connectivity at this level generally requires a hefty fee to one of the top level service providers. Colorado SuperNet, for example, provides such connections for as little as \$7500 per year, but in most areas it costs considerably more than that and can go as high as \$85,000 annually. While we would expect some movement toward full IP connection of bulletin boards at some time, it doesn't look very imminent.

Dialup IP is different story. This is probably the most exciting frontier for bulletin boards. It involves intermittent connection to the Internet using the **Internet Protocol**, but accomplished through a regular switched telephone call. Typically, the connection is through 14,400 bps modem, but **ISDN** is on the horizon offering a tempting 64 kbps or even 128 kbps connection. It offers most of the advantages of full IP at much lower cost. You can still use the two ubiquitous programs of Internet - **ftp** and **telnet**, as well as instant delivery of **Simple Mail Transport Protocol** (SMTP) mail. But the connection is made only when needed.

Dialup IP at this point uses one of two protocols - **Serial Line Internet Protocol** (SLIP) or **Point-to-Point Protocol** (PPP). SLIP is conventionally available - but is gradually giv-



ing way to PPP which is a bit easier to set up and a bit more robust. The equipment and software costs for SLIP and PPP are considerably less and SLIP accounts from host services are much less expensive - typically between \$100 and \$250 per month.

For example, Cogwheel Inc. of Boulder Colorado offers a remarkably inexpensive device called **Slip On A Stick**, which works with an ordinary V.32bis modem to connect LANs to the Internet using SLIP or PPP protocol. Priced at \$1199, this device is actually an 80C186 computer with ethernet and serial ports in a package not much larger than a modem. Software for SLIP is built into the device. You connect an ethernet cable from your LAN to the device, and a V.32bis modem to the serial port connection on the device, and it handles requests from LAN users by dialing the modem and connecting to the host provider. It monitors the line for inactivity, and when the user is finished, it hangs up the connection. Cogwheel, Inc., 1705 14th St. Suite 308, Boulder, CO 80302; (303)444-1338 voice; (303)442-3480 fax; Internet: soas-info@cogwheel.com.

Tim Pozar and Tom Jennings, founder of FidoNet, are working on something quite interesting in this area. They use a shareware package titled **KA9Q** with a very modest XT computer and V.32bis modem to work much like Slip On A stick. It's more flexible, costs less, and again accomplishes the dialup IP connection. We expect to cover their activities in this area in a series of articles in coming issues of Boardwatch.

The final level of Internet connectiv-

ity, and the one of most interest to BBS operators at this point is **dialup UUCP**. **UUCP** stands for **Unix-to-Unix-Copy-Program**, and actually it doesn't provide an Internet connection at all in any strict sense of the term. It is a way to provide a dialup connection to a system that **IS** connected to the Internet. But it can be used to port electronic mail, and Usenet Newsgroup conferences, to a BBS. This is the area many bulletin boards are looking for. They want to provide their callers with the ability to send electronic mail anywhere in the world, and of course, add Usenet Newsgroups much as they do with Fidonet Echomail, PCRelay, ILINK, RIME, and other BBS networks.

The UUCP connection is quite inexpensive actually and for BBS callers, it provides as much Internet service as they often really have any interest in. Bulletin Boards are loaded with file areas now so **ftp** doesn't really add much for callers. Likewise **telnet** is not terribly important. Most BBS callers are dialing locally anyway and are comfortable with terminal programs and offline mailers offering many more features and creature comforts than telnet ever will. But there is no such thing as too many message conferences, and the ability to send mail to CompuServe, Delphi, Prodigy, GENie, other bulletin boards, universities, or friends abroad from a local BBS is powerfully attractive.

UUCP accounts are typically available for about \$35 monthly although many providers seem to be struggling to recast bulletin boards as something different and requiring higher fees now that there is some interest in this area. But generally, the accounts are available for \$20 to \$50

monthly. Connection costs depend on the host and whether or not the BBS is paying long distance costs to make the connection. For the personal e-mail needs of BBS callers, this doesn't present much of an expense. And a few newsgroups are likewise not terribly expensive to bring in. Bulletin boards that carry a full Usenet Newsgroup Newsfeed can get into some expense however. Usenet News has grown to the point that a full News feed means transferring some **35 MB DAILY** by modem. That takes 7 or 8 hours per day even with V.32bis modems.

The UUCP connection requires NO hardware beyond a modem and PC. The connection usually uses the UUCP **g protocol**, and DOS machines usually need a software program for UUCP that includes a **Unix to Unix Copy In Copy Out** program (**UUCICO**). The three most common DOS programs to do this are Thomas Dell's **WAFFLE**, a shareware program titled **UUPC**, and Fubar Systems **FSUUCP** program. These programs will allow a system to dial a host, transfer mail, manage newsgroups, and so forth.

From there, the connection devolves into porting the mail into and out of the BBS software, and this of course depends on the software used. Some translation from the SMTP mail files to the BBS message base is required.

For Wildcat! and MAJOR BBS operators, for example, there are currently no utilities to do this directly. The mail must be translated through something else first. Several packages exist to convert SMTP to FIDONET style messages, for example, including Tim Pozar's **UFGATE**. They can then be brought into the BBS using existing Fidonet utilities. More likely, both Wildcat! and MAJOR BBS have good utilities to convert to Novell's **Message Handling System** (MHS) mail and there are utilities to convert SMTP mail to MHS format.

There have been several utilities to port mail into PCBoard systems. Ed Hopper wrote a shareware program

titled **uuPCB**. This shareware program is available for as little as \$49 and uses Thomas Dell's **WAFFLE UUCICO** to actually make the connection.

More recently, Roy Pereira of **Merlin Systems** in Ottawa Ontario has been doing some interesting work all around in porting PCBoard message areas to various other mail formats. Merlin Systems actually developed the recently announced **PCB-MHS Gateway** for PCBoard mentioned in our last issue. They're currently working on a very complete UUCP package for PCBoard systems titled **PCB-UUCP Gateway**. This package handles many of the little things required to actually make Internet mail easy for callers, such as setting the mail waiting flag when they receive Internet messages, attached files, etc. It allows callers to reply to Internet messages in a much more transparent way than uuPCB. Even better, PCB-UUCP adds some functions that allow the PCBoard BBS to act as a mailing list server with a **LISTSERV** function. You can even provide downstream connections to OTHER PCBoards for Internet mail and newsgroups. The program is in beta test and pricing has not been set as yet. Merlin Systems, Inc. PO Box 3043, Station C, Ottawa, Ontario Canada K1Y 4J3. (613)236-1136 voice; (613)236-1481 fax/bbs; Internet: info@merlin-systems.on.ca Fidonet 1:163/509.

TBBS systems are fairly well connected to Fidonet and most TBBS operators have historically used Fidonet gateways to send Internet messages. But the process is so cumbersome for callers, that it has never caught on very well. Since we use this software at Boardwatch, we wrote an assembly language program we call **Personal Internet Mail Processor** (PIMP) to import and export SMTP messages directly to/from the TBBS message database. We use Chris Ambler's **FSUUCP** program to actually make the connection to Colorado SuperNet to transfer mail a few times each day and **PIMP** to scan Internet messages out of the TBBS message base and toss incoming

SMTP mail files into the message base. As a result, callers can send Internet mail about as easily as a local message and all TBBS message functions work as usual. By virtue of eSoft's QSO option module, callers can actually send Internet messages from their offline **QWK** mail programs easily. We released **PIMP** to the rest of the TBBS community as a shareware program last November. It does not handle Usenet Newsgroups. It's available on the eSoft product support board in the file **PIMP.ZIP**.

LEGALLY ON-LINE

FRONTAL ATTACK ON THE PUZZLE PALACE

by Lance Rose

A privately funded attack is underway against a little-known government agency that has devoted itself to the control of privacy in this country (who gets to have privacy, who doesn't, and how much privacy can anyone have?). If successful, it may begin to unravel decades of surreptitious information control so effective most of us have not been aware of its operation.

The agency in question is the National Security Agency, or NSA. It was established in 1952 by President Harry Truman to monitor signal transmissions that might affect the security of the United States. Since that time, the NSA has steadily cast a pall over public use and knowledge of cryptography, and generally regulated the limits of privacy in this country. It has done so with 40,000 or more active employees, and funding not readily discernible from inspecting Congressional budget lines.

Those not already familiar with the NSA might be surprised at the depth and extent of its influence. For instance, rumor has it that NSA monitors much of the digital telephone activity in this country, even though it is authorized only to monitor foreign transmissions.

NSA is also in charge of regulating the export of cryptographic devices to other countries, which are officially deemed such a great security risk they are dealt with as "munitions" under the U.S. export control laws. Any device or software intended for export and using encryption techniques (which are usually included to aid in the privacy or security of personal or business communications, such as in cellular phones) must be reviewed by the State Dept., which generally passes on the review to the NSA. These review processes are so slow and nitpicking that they choke off almost all international trade in effective encryption devices from the U.S. The ultimate effect of this process, as pointed out by John Barlow of the EFF, is to inhibit development of strong encryption devices even within the U.S., since manufacturers are often reluctant to make two different versions of their goods, one for domestic use and one for export. Well-known, powerful encryption techniques subject to close NSA export control include devices based on the DES algorithm, and public key devices based on the RSA algorithm.

In addition, NSA is actively involved, along with such cohorts as the FBI and the Justice Department, in ongoing legislative efforts to keep effective new cryptography and privacy techniques out of the public's hands. Last year, proposed Senate Bill 266 would have made it illegal to use a cryptographic technique unless the government had been provided a "back door" enabling it to easily extract the plain text from any message encrypted through that technique. Apparently, brute force cipher-cracking by the NSA was wasting a little too much of the taxpayers' dollars (albeit through untraceable budget lines) so we would all get a break if the government's obligatory snooping and code-cracking activities cost a lot less. Luckily, this bill was kept from enactment, in large part through the efforts of the Electronic Frontier Foundation.

NSA and FBI came back this year with a new variation - a bill that

would require all phone companies to set up special wiretap stations for official eavesdropping, so agents would not have to waste taxpayer dollars figuring out how to tap those nasty optical fiber lines without being detected. It's ironic that in the face of a federal statute (the Electronic Communications Privacy Act) with strong legal obstacles to discourage officials who seek to monitor private telephone activities, those same officials want to install facilities giving them the practical ability to wiretap as easily as you or I might open the faucet for a glass of water. Another NSA tactic has been massive removal of texts on cryptography from public access through classifying them as secret government documents. Again, slowing down the transmission of knowledge on cryptography in this manner has placed a drag on development of publicly useful encryption methods. The advent of the Freedom of Information Act (FOIA) threatened this regime, with its provisions for requesting declassification of government documents.

However the NSA, like many other federal agencies, discovered a fairly effective antidote to FOIA requests: ignore the requests, and when it could ignore them no longer, make the requesting party drag the NSA bodily into court over and over in escalating legal procedures to compel production of the requested documents. This process was such a burden on the requesting parties that it weeded out all but the most dedicated and well-financed attempts to fetch documents on cryptography out of the black hole of NSA classification. Such conduct was also literally illegal, since it involved failure to meet statutory time limits to respond to FOIA document requests. The NSA appeared to be deliberately not meeting the time limits, and basically thumbing its nose at those who sought the documents under its control.

One of those who encountered the NSA's monumental heel-dragging in releasing cryptography-related docu-



ments was John Gilmore. Gilmore runs a software house named Cygnus Support, was one of the founders of the Electronic Frontier Foundation, and is a vocal and impassioned supporter of individual privacy rights against the modern encroachments of the state. Gilmore and his attorney, Lee Tien, decided to challenge certain NSA practices head-on, specifically the practices of overclassifying documents in the area of cryptography, and the NSA's unwillingness to release cryptographic materials into the public domain regardless of whether the materials actually have strategic military value justifying their classification.

In July, 1992, Gilmore requested, under the FOIA, copies of the books "Military Cryptanalysis" by Friedman, volumes 3-4 (earlier volumes were already declassified) and "Military Cryptanalytics" by Friedman and Callimahos, volume 3 onward (the exact number of volumes is not publicly known). The Friedman books dated from the 1930's, the ones with Callimahos from the 1950's - not likely state of the art stuff. To add a little irony, Friedman had been one of the founders of the NSA.

To no one's surprise, the NSA did not respond to Gilmore's FOIA request for the books. Gilmore appealed the decision administratively, but again was unable to obtain the materials, forcing him to the next step of filing a suit against NSA in federal court in the Northern District of California.

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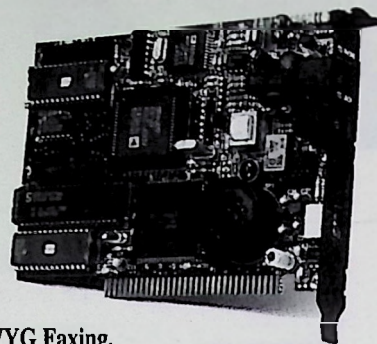
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Here is an example of an administrative setup ripe for abuse, being played for all it's worth by the NSA. In an ordinary court action, a party who does not respond within a time limit set by statute can lose the case by default. Here, however, the NSA did not lose anything by not responding to the FOIA requests in the administrative agency setting. In fact it actually gained an advantage, forcing Gilmore to put more energy and resources first into a pointless administrative appeal, and then finally starting a federal court action from scratch. Some time after beginning the FOIA procedure, Gilmore tracked down the Friedman volumes from the '30's at a couple of public repositories in California. Amazingly, when the NSA found out he had the books, they told him the books were still classified or should be classified, and threatened him with a criminal action if he dared to show the books to anyone else. This received some press attention in the S.F. Examiner and elsewhere, to the NSA's great displeasure. Not only was the NSA getting publicity, which it shuns, but it looked like NSA was trying to bury ancient materials already fully accessible to the public, and threatening to jail someone who dared assert the public had a right to such materials.

The attention had a salutary effect on the NSA's actions, however. They recently declassified the old Friedman volumes, making it perfectly legal for Gilmore to distribute them. Score one for the libertarians. They have started the NSA backpedalling.

As we go to press, Gilmore's case against the NSA is still proceeding for purpose of obtaining the remaining Military Cryptanalytics volume(s), as well as a "pattern and practice" claim against the NSA. This last legal claim is particularly important. As described above, the NSA drags its heels on FOIA requests, outlasting all but the most resolute opponents. But any time a hardy soul manages to push his case close to a court decision, the NSA can turn around at the last moment and say,

"here are the materials you requested." The case would then officially become moot because the request was finally honored, and no court decision stating that the NSA engages in obstructive and delaying practices would ever issue. This sorry result can be avoided by the claim that NSA engages in a "pattern and practice" of obstructing and delaying FOIA requests for cryptographic materials. It will survive any such "mooting" move by the NSA, and if Gilmore perseveres, may result in a judicial decision laying some of the NSA's practices bare on the public record.

If Gilmore and his attorney Lee Tien succeed, they could end up chipping off a big piece of the NSA wall of darkness. From the look of things, they may still have some arduous going ahead. No matter the decision on the trial court level, the NSA will have many court appeals left, and doubtless other moves buried deep in its bag of tricks.

Those interested in cryptography issues may find a new Internet mailing list of interest. A group is physically meeting in John Gilmore's Silicon Valley facilities and has started a mailing list under moderation of Timothy C. May (tcmay@netcom.com). The group includes John Draper (Cap'n Crunch), Tom Jennings, and others interested in cryptography, anonymous mail forwarding techniques, encryption, the Pretty Good Privacy program, and other privacy issues. You can join this mailing list from any service allowing Internet e-mail by sending a message to CYPHERPUNKS-REQUEST@TOAD.COM.

[Lance Rose is an attorney practicing high-tech, computer and intellectual property law in the New York City area, and is available on the Internet at elrose@well.sf.ca.us and on CompuServe at 72230,2044. He works with shareware publishers, software authors, system operators, technology buyers, inter-

active media developers, on-line database services and others in the high technology area. He is also author of the book SYSLAW, a legal guide for bulletin board system operators, available from PC Information Group (800)321-8285. - Editor]

DIRECT DIAL

HOME POWER RENEWABLE ENERGY BBS

At times we gadget guys miss the days when oil was the king of shortages, and solar power, electric cars, and gadgets to get 100 mpg for your old ghetto cruiser were all the rage. But we found an enclave of the remnants of that golden age in Arcata California.

Don Kulha, under the auspices of the Redwood Alliance and Redwood Environmental Education Institute, operates a small TBBS system devoted to alternate power technologies. The HomePower Renewable Energy Communications System operates at (707)822-8640 and focuses on "getting off the grid" - alternate power solutions for individuals.

The system has message conferences for Photovoltaics, Micro-Hydro Systems, Wind Power, Hydrogen Power, Battery Storage, Electrical Vehicles, and other do it yourself watt technologies.

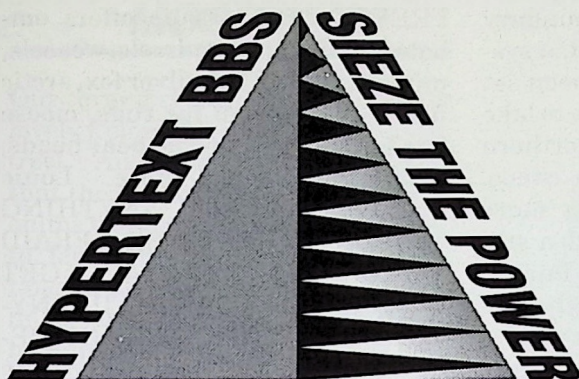
The system began life last August and so far hasn't seen a lot of message traffic. But it has worked an alliance with a print publication - HomePower Magazine. They have the first ten issues of this year online with a fairly descriptive search index on article titles. Better, the text is broken into individual articles and the downloadable files often include small GIF images of graphics that went into the magazine along with the articles.

We found articles such as "Are Photovoltaics Right for Me," "A Working

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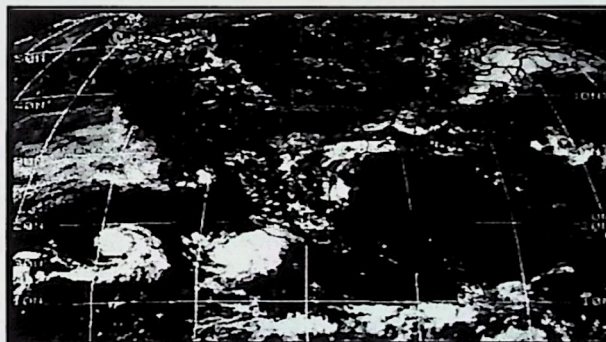
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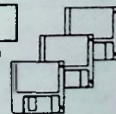
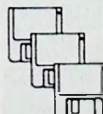
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Micro-Hydro at Journey's End Forest Ranch;" "Back Country Communications;" "Engine Driven Generators for Home Power;" "Internal Resistance in Lead Acid Batteries;" and "Photovoltaics: The Alternative to Life in a Greenhouse."

This is hands-on environmentalism at its best. Many of the articles and system users are people who have moved away from it all and found that they moved away from cheap electricity and gas service in the process. One gent was building a rural log home and found the utility company wanted \$30,000 to run power lines to his property. For that kind of cash, gasoline generators, miniature hydroelectric installations, photovoltaics, and other power generation hardware begin to look good. Apparently, you can put in a solar electric power system with batteries, inverters, and a gasoline backup generator for \$10,000 or so these days. And there is no small satisfaction in "getting off the grid." Many of these people are working toward total self sufficiency - even to telephone service by radio.

The system also features a file listing vendors offering hydro-electric generators, photovoltaic panels, inverters, batteries, wind generators, etc. Interesting topic. The board is a bit young, but if they find some action, it looks well done. Redwood Alliance, PO Box 293, Arcata, CA 95521; (707)822-7884 voice.

CANOE TRIPS ONLINE - BOUNDARY WATERS BBS

One very effective use of BBS technology is as an information service to promote a specific area for tourism, jobs, recreation, or shopping. We've not seen it done much better than Gary Knopp's BOUNDARY WATERS INFORMATION SERVICE at (218)365-6907.

After spending just a few minutes on this QuickBBS system operating out of Ely Minnesota, we feel

like we know the area. Ely Minnesota is quite close to the Canadian boarder, near Moose Lake, The Quetico Provincial Park, Superior National Forest, and the Boundary Waters Canoe Area. Indeed, a system of canoe portages has been set up so you can move from lake to lake across a fairly vast area of northern Minnesota and Canada by canoe. There just isn't anything more peaceful than gliding across a still lake, after about 30 beers, burned deep red by the sun and with mosquitoes the size of Japanese Zeros pulling strafing runs across the thwarts of your canoe. But I wax poetic.

The country is beautiful, indeed, it is said to be THE favorite place of Charles Kuralt - one of the few minds in broadcast television with an IQ in excess of his waistline - and long-time reporter from the ON THE ROAD series that seemed to seek out the best in America. As such, the Ely Minnesota area is clearly given to tourism.

The system provides a wealth of information. Lists of outfitters for canoe trips caught our eye. Jack and Toni's Fall Lake Wilderness Canoe Trips, the Piragis Northwoods Company, Tom Woods Moose Lake Wilderness Canoe Trips - who can decide. There were half a dozen tour guide outfits offering wilderness canoe trips using the latest equipment etc. The BBS offered a list of some 170 books on canoeing.

But the system went beyond just listing outfitters for wilderness trips. For example, it offered a list of local radio stations, local real estate including descriptions of lake homes, cabins, rural property, etc.

There were also lists of resorts, hotels, camping facilities, fishing trips such as the Bear Island Resort, and Timber Wolf Lodge. And there was a bit of a mini-mall online listing various retail establishments around town, what they specialized

in, and how to contact them by fax, mail, or voice phone. We were a bit enchanted by the ad for LOUIE CHAMPA TAXIDERMY AND FREEZE DRY. Louie offers embalmed duckling, squirrels, weasels, mink, otter, red fox, silver fox, arctic fox, bear and wolf fur rugs, moose heads, deer [sic] heads, bear heads, birds, antlers and more. Louie proudly claims that ANYTHING YOU WANT DON'T BE AFRAID TO ASK - WE CAN LEGALLY GET IT FOR YOU - CAN MAIL ANYWHERE - WHOLESALE AND RETAIL PRICES. Apparently they have a special line of glass end and coffee tables with various chunks and body parts of local wildlife mounted inside. It appears you can actually order limbs and body parts of wildlife by mail order from Louie - virtually any piece of any animal your heart desires - delivered UPS.

The system offers an entire series of birdwatching articles written by Bill Tefft, a local columnist for the Ely Echo - the town's weekly newspaper. The articles are quite charming, and Bill urges his readers to call him with questions or sightings at (218)365-6785.

The magic of Boundary Waters goes beyond simple lists of services available in the area. It actually gives you a feel for a small town, built on tourist trade, where stores and services are run by guys like Louie, outfitters like Jack and Toni, and well...people. And if you are looking for that perfect outdoor vacation spot, this system can put you in touch with the people that can fix you up. Gary Knopp, InfoNorth, HC1 Box 2675, Ely, Minnesota, 55731; (218)365-4118 voice; (218)365-6907 BBS.

AN AMERICAN COWBOY IN MOSCOW

Our cover girl this month is the ever lovely Colonel Dave Hughes Sr. USA (ret). And we're pleased to report that the cowboy poet laureate of the online world is continuing his efforts to fence the global range with a tangled web of wires, packet data links, and assorted other links to making the online connection.

For those unfamiliar with the network escapades of the good Colonel - a recap. In the late 1970s he retired from a career in the U.S. Army to his hometown in Colorado Springs, Colorado. He became involved with a project to revitalize Old Colorado City, a rundown historic area. He was introduced to online networking originally on a service titled THE SOURCE where he made the connection with others who had been through the civic revitalization gamut and gained some pretty helpful advice on how to do it right. Old Colorado City DID get revitalized, but Hughes also found a new love - making modem lights blink in the dark. He's been an unapologetic champion of online networking and conferencing since.

He setup his own system in the early 80s and founded a small consulting firm known as Old Colorado City Communications. He eventually migrated to running UNIX bulletin boards - originally to handle discussions of local political events. The original place for political discussions was a tavern in Old Colorado City called Roger's Bar. And so he named his bulletin board system Roger's Bar and the focus of the BBS was political discussions. The real Roger's Bar retaliated by installing an RJ-11 jack in one of the booths in the bar and Hughes could regularly be found IN the bar relating online conversations to real-time heavy drinkers and bar discussions of local politics to electronic text on his BBS. At least one local city councilman thinks Hughes got him elected electronically, and



the current Mayor of Colorado Springs still logs on occasionally to render the official city line on what's what and how come.

Hughes was drawn to the problems of education and decided that part of the solution was communication. He installed a system in Montanna linking some 800 local school houses using very low cost BBS technology. Today, Big Sky Telegraph is a model for inexpensive networking of school systems. He teamed up with George Johnstone of the MIT plasma fusion lab to offer a course in Chaos Mathematics to gifted high school students throughout the west - using FidoNet technology. And he's been campaigning across the upper west on Indian reservations to get reservation schools

online to communicate using native American language, symbols, and art. But generally, Hughes has just taken on the lifetime mission of carrying the message of online communications to groups around the country, and indeed around the world. He's traveled to Japan, Italy, and points in between to speak to groups large and small about getting into the online world - how to do it, why to do it, and why it's important they do it soon.

Of recent years, Hughes has become convinced that to teach courses such as mathematics online, to be able to communicate effectively on an international basis, and to accomplish things like bringing Native American Indians online, the online world

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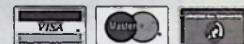
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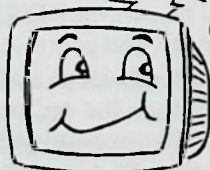
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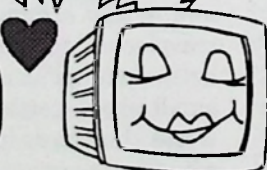
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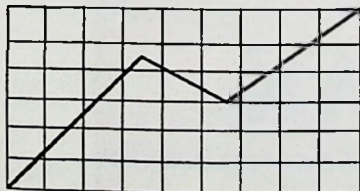
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needs a bit more expressive medium than ANSI graphics and ASCII text. He became an early advocate of NAPLPS graphics (North American Presentation Level Protocol Syntax - Ansi standard X.110) to allow the use of International Character sets and graphic images that can be transmitted reasonably quickly. But so far, he's been frustrated by the lack of tools to draw and view NAPLPS graphics.

He talked Peter Jordan, of Microstar Ltd. in Canada, into releasing a basic version of their Microstar Graphics Editor and their Personality Plus terminal program as shareware. Microstar actually did quite a bit of the work to get Prodigy up and running with NAPLPS graphics. The release of these tools did spur interest in the BBS community, but the terminal program lacks the amenities most callers online have come to expect - such as file transfer protocols.

With the breakup of the communist bloc, Hughes established contacts in the Soviet Union. Russia sports some top-flight minds in science and Computer Science particularly has its share. But after the breakup, Russian programmers are having a hard

go of making a living. And with the exchange rate of the Russian Ruble falling to some 400 Rubles per dollar, the typical 2000-8000 Ruble salary in Russia has become something of a problem. Taxi drivers and street vendors have taken to the new capitalism with some gusto. But professional classes have suffered. The result is that Russian programmers are more than willing to take on work from the U.S. in exchange for fairly modest amounts of hard currency.

Enter Andrey Sebrant (asebrant@glas.apc) Sebrant is a laser physicist active online - he backs a project termed DATASPHERE to get high school students online. Hughes contacted Sebrant about having a team of Russian programmers write a NAPLPS terminal program and drawing package to his specifications. Sebrant

agreed to act as supervisor on the project and brought on two talented Russian programmers to do the actual work. Alexander "Sasha" Koshel is a 26-year old telecommunications programmer while Kirill Lozin specializes in graphics software development. Both are graduates of the Moscow Physics and Technology Institute and Lozin is actually a doctoral candidate there.

And so the project was launched. Aside from developing NAPLPS tools, it comprises a very interesting experiment in long distance contract programming. Could a program development team produce a product with most of the communication taking place internationally, cross culturally, across the language barrier, and largely by electronic mail? Informally, the team was named the TROIKA after the Russian symbol for three horses drawing a fast sleigh, and the program more conventionally named TELEDRAW.

In early November of 1992, Hughes traveled to Moscow to meet with the team and review progress on the program. His electronic text travelogue, available on his system in Colorado Springs at (719)632-2658 (or telnet oldcolo.com) provides a charming if rambling account of Russian city life,



the family he roomed with while there, some of the signs of the times there, and a Moscow McDonalds hamburger stand that makes em just like they do in Colorado Springs - if you care to wait in line with 700 hungry Russians. Burger, fries, and drink runs about 800 Rubles - roughly \$2.00.

While in Moscow, Hughes visited the GLASnet site housed in the old Railroad Ministry building. This is a dialup system running Interactive Unix on a 486 machine with an assortment of Telebit, U.S. Robotics, Multitech, and GVC modems. They have a UUCP connection through a group called RELCOM and sport eight employees and some 400 paying users. Although their Internet connection is via UUCP dialup, they have done some experiments within Moscow using TCP/IP using dialup SLIP. Hughes brought them a tape backup system - much to their pleasure.

But the real reason for the trip was to see the NAPLPS program he contracted for. And he was not to be disappointed. According to Hughes, Alexander Koshel (informally known as Sasha) could easily "pass" in Silicon Valley. He was the Russian version of the laid back hacker type, but was a bit of a whiz in putting Borland's C compiler through its paces. The TELEDRAW program will allow users to create NAPLPS programs, exchange DRCS tables with foreign character sets, and also serves as a terminal program with XMODEM, ZMODEM, dialing directories, and all the usual amenities.

One of the most innovative elements of the TELEDRAW program is a built-in UUENCODE/UUDECODE algorithm. UUENCODE and UUDECODE are two very simple programs that allow people on the Internet to send and receive binary program files over a system that sports "gateways" that often only allow the transmission of ASCII text and worse, often only 7-bit ASCII text (the lower 128 characters of the ASCII character set). The programs simply



encode binary files into slightly larger text only files, and of course UUDECODE translates it back into a binary form. It has become a common means of transporting such files on the Internet. In TELEDRAW, you can create a NAPLPS graphic electronic mail message and send it in UUENCODED form. The program runs the UUENCODE algorithm automatically on the way out. On the other end, a Teledraw program receiving an encoded NAPLPS graphic message can decode the text AND display it on screen on the fly - without a separate conversion process. The result is end-to-end NAPLPS graphics across virtually any network.

Once the program design and review sessions were completed, Hughes visited with an assortment of Russian entrepreneurs all quite interested in what they could sell to the American market - everything from Russian military supplies to a Russian designed graphics scanner.

His host Andrey Sebrant supplied us with this month's list of Russian bulletin boards. When we last published a list of Russian BBSs nearly two years ago, there were approximately forty systems operating in the entire Soviet Union. Today, we

find over 300 systems across the land and nearly 125 in Moscow alone. Many areas of the Soviet Union are available by direct dial now.

Russian economic life remains precarious. But the concept of entrepreneurial product development seems to have taken root, along with a fascination with electronic communications and business relationships with the west. We look for alliances and partnerships similar to those engineered by Dave Hughes to become quite normal in a future where continents are separated by little more than the diameter of a fiber optic cable.

Teledraw should be released in the next few months. For more information about the program, contact Dave Hughes, Old Colorado City Communications, 2502 West Colorado Ave., Suite 203, Colorado Springs, CO 80904; (719)636-2040 voice; (719)593-7521 fax; (719)632-4111 BBS; Internet: dave@oldcolo.com.

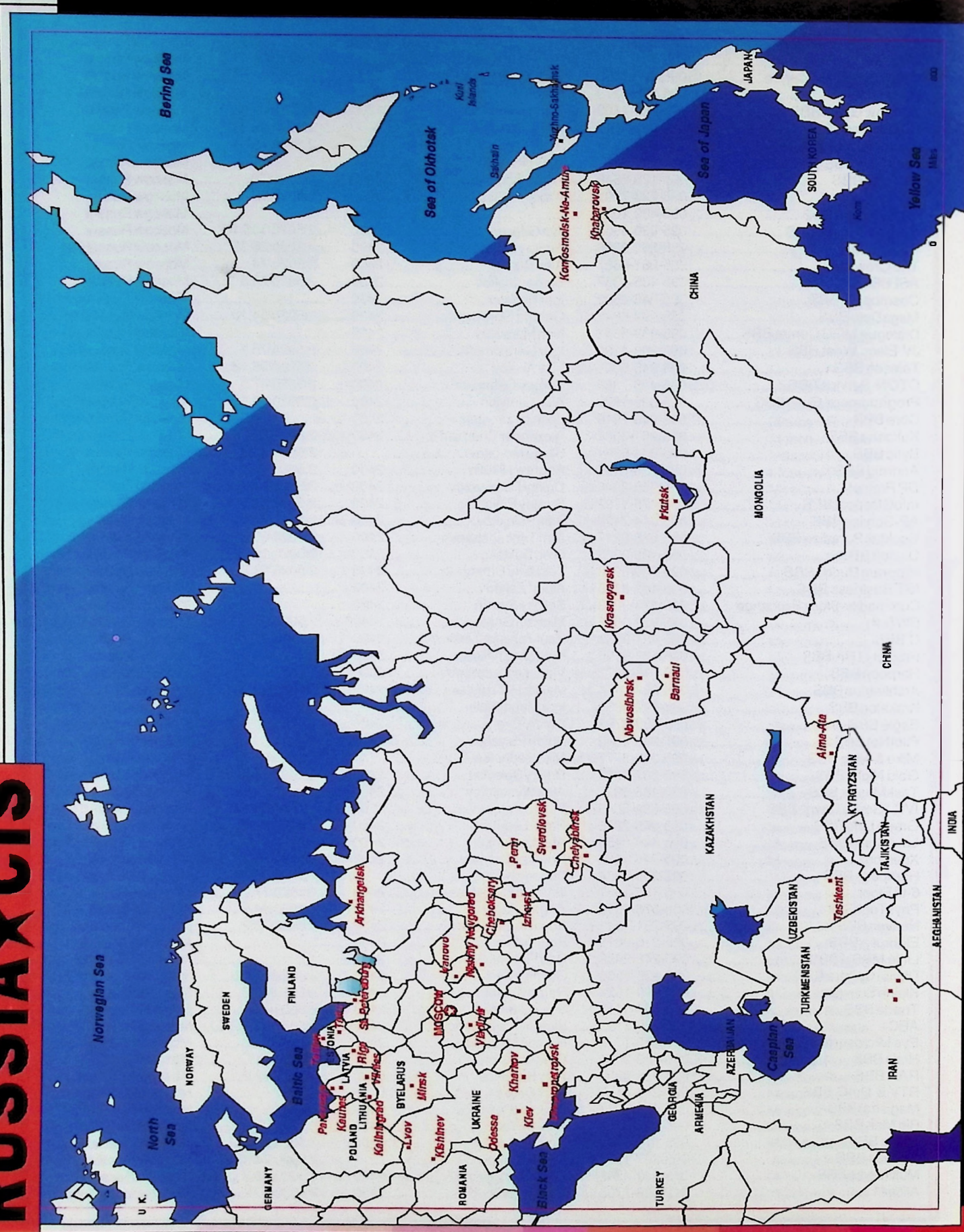
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List of 322 Electronic Bulletin Boards

Country Code Dialing Prefix 7

BBS	DATA	SYSOP	SPEED	FIDO#	CITY
Moscow Fair	095-366-5209	Alexey Zabrodin	9600	2:5020/3	Moscow Russia
MostNet2	095-943-0039	Pavel Galyamin	2400	2:5020/4	Moscow Russia
JV Dialogue 1st BBS #1	095-329-2192	Pete Kvitek	14400	2:5020/6	Moscow Russia
JV Dialogue 1st BBS #2	095-329-5133	Pete Kvitek	9600	2:5020/5	Moscow Russia
Alan BBS	095-532-2943	Alexander Yashin	9600	2:5020/11	Moscow Russia
Do-mail! BBS	095-939-1669	Aleksandr Scherbakov	9600	2:5020/13 (?)	Moscow Russia
Blue House BBS	095-932-6410	Dmitry Popov	2400		Moscow Russia
Metal Heart of Weilus	095-318-6582	Ilya Suslov	2400	2:5020/15	Moscow Russia
Data Board BBS	095-326-5888	Serg Khan	2400	2:5020/16	Moscow Russia
Soft Parade System	095-151-5941	Vladimir Yablonsky	2400	2:5020/17	Moscow Russia
PCC BBS	095-461-1378	Mike Holodov	9600	2:5020/18	Moscow Russia
Xtalk BBS	095-367-5545	Gregory Nickonov	1200	2:5020/20	Moscow Russia
White Bear BBS (4 lines)	095-932-8465	Maxim Medvedev	2400	2:5020/22	Moscow Russia
Iron Doors BBS	095-465-6610	Alex Snigerev	9600	2:5020/24	Moscow Russia
Black Metal	095-150-8500	Anton Pankov	2400	2:5020/27	Moscow Russia
INPRO BBS	095-924-5797	Izotov Maxim	2400	2:5020/28	Moscow Russia
Koza Nostra BBS	095-337-5352	Ivan Ryabov	2400	2:5020/30	Moscow Russia
Blue Bottle	095-187-2659	Vova Korolov	2400	2:5020/33	Moscow Russia
Vita BBS	095-129-1744	Dmitry Ablov	2400	2:5020/34	Moscow Russia
Wolf the Grey BBS	095-152-4398	Koctya Boyko	2400	2:5020/37	Moscow Russia
Little Star BBS	095-250-1964	Mike Rogalsky	2400	2:5020/38	Moscow Russia
Time Machine	095-202-5385	Stars Kalianov	2400	2:5020/39	Moscow Russia
Square Wheel BBS	095-238-5098	Constance Kuznetsov	2400	2:5020/41	Moscow Russia
Chip'n'Dale (line 1)	095-202-4852	Serge Korotovskih	14400	2:5020/42	Moscow Russia
Chip'n'Dale (line 2)	095-202-4863	Serge Korotovskih	2400	2:5020/42	Moscow Russia
Sails BBS #1	095-261-5103	Sergey Kalmykov	2400	2:5020/45	Moscow Russia
Mister Postman	095-229-7769	Boris Tyshkiewitch	2400	2:5020/52	Moscow Russia
Wasp System	095-938-7193	Serge Wizgounoff	2400	2:5020/54	Moscow Russia
Business BBS #1	095-482-1044	Alexey Lipovetsky	2400	2:5020/58	Moscow Russia
Doors]! [#1	095-536-6709	Mike Skulkin	2400	2:5020/60	Moscow Russia
Falcon Hill's BBS	095-365-3770	Boris Fifelin	2400	2:5020/63	Moscow Russia
AstroPro BBS	095-939-8347	Igor Kuznetsov	2400	2:5020/66	Moscow Russia
JV DialogueScience BBS	095-135-6253	Boris Chernivetsky	2400	2:5020/69	Moscow Russia
Monster's Small Station #2	095-274-9104	Igor Gerasimoff	1200	2:5020/75.2	Moscow Russia
Sam's BBS	095-490-5166	Alex Samutin	2400	2:5020/76	Moscow Russia
U.F.M BBS	095-245-6619	Fyodor Ustinov	9600	2:5020/79	Moscow Russia
Builder BBS	095-923-9743	Dmitry Kireev	2400	2:5020/82	Moscow Russia
Halloween BBS	095-291-5844	Igor Golovin	2400	2:5020/83	Moscow Russia
AviaBank BBS	095-207-4563	Dima Palatkin	9600	2:5020/95	Moscow Russia
DE BBS	095-261-9661	Dmitry Efimov	2400	2:5020/102	Moscow Russia
Night Director BBS #1	095-938-0081	Ivan Sinelobov	2400	2:5020/104	Moscow Russia
Night Director BBS #2	095-938-6125	Dmitry Ostretsov	2400	2:5020/104.2	Moscow Russia
Night Director BBS #3	095-938-6832	Vladimir Kostrukov	2400		Moscow Russia
AWAX-CBL BBS (commercial)	095-931-0740	Sasha Vishnevetsky	2400	2:5020/105	Moscow Russia
Strawberry Fields	095-299-9104	Oleg Filippov	2400	2:5020/106	Moscow Russia
OmniBus BBS	095-231-1720	Nick A. Skokov	2400	2:5020/33.4	Moscow Russia
Back Panel #2	095-278-1428	Alex Melnickov	2400	2:5020/33.1	Moscow Russia
ClarioNoos BBS	095-178-3473	Dmitry Semibratov	2400	2:5020/60.8	Moscow Russia
ABN1stBBS	095-202-9202	Andrew Nevsky	2400		Moscow Russia
ABN2ndBBS	095-927-3990	Andrew Nevsky			Moscow Russia
Hacker's Great BBS	095-291-5023	Pekshev Ilya	2400		Moscow Russia
Elvis BBS	095-535-5242	Andrey Arkhipov	2400	2:5020/60.3	Moscow Russia
Last Chance BBS	095-333-9474	Oleg Vasiljev	2400	2:5020/75.11	Moscow Russia
InterLink	095-946-8752	?	2400		Moscow Russia

BBS	DATA	SYSOP	SPEED	FIDO#	CITY
InterLink (russian line)	095-946-8753		2400		Moscow Russia
Solar Wind BBS #1	095-531-0009	Const Lazareff	2400	2:5020/24.19	Moscow Russia
Exchange Trade Centre	095-406-1166	Cyril Plisko	2400		Moscow Russia
Alexanders	095-924-4379	Alexandr Mozhejko	9600		Moscow Russia
Shadow Gluck BBS	095-452-4103	Sergej Qkowlew	1200	2:5020/48.4	Moscow Russia
Bloody Andy BBS #1	095-921-3197	Andy Trushin	2400	2:5020/48.11	Moscow Russia
Bloody Andy BBS #2	095-208-0479	Andy Trushin	2400	2:5020/48.11	Moscow Russia
Raul Mini BBS	095-207-3387	Raul Harlamov	2400		Moscow Russia
Hobbit's BBS	095-128-6642	Frodo Baggins	2400		Moscow Russia
Miracle BBS	095-233-7291	Alexander Isaev	2400	2:5020/92	Moscow Russia
Business BBS #2	095-482-1022		2400		Moscow Russia
Dragon Square BBS	095-930-5969	Ilya Gribow	2400	2:5020/105.10	Moscow Russia
Pal Inform BBS	095-262-9390	Andrey Odegov	2400	2:5020/35.25	Moscow Russia
The Crown BBS	095-261-6687	Alex Barsky	2400	2:5020/74	Moscow Russia
ASI BBS	095-485-5337	Sergey Isakov	2400	2:5020/28.5	Moscow Russia
Cosmopolis BBS	095-946-2502	Igor Borisov	2400		Moscow Russia
MegaDeth BBS	095-192-8849	George Gorshkov	2400	2:5020/54.10	Moscow Russia
Dialogue MGU Centre BBS	095-939-3891	Ivan Muravyev	2400		Moscow Russia
JV Elecs West BBS	095-208-4190	Igor Gerasimoff	2400	2:5020/75.1	Moscow Russia
Telesoft BBS	095-945-5056	Mity Akulov	2400	2:5020/35.18	Moscow Russia
OTON-Service BBS	095-438-7368	Sergey Okhapkin	2400	2:5020/47.5	Moscow Russia
Programmers' Guild BBS	095-939-1871	Alex Lamykin	2400	2:5020/40.13	Moscow Russia
Core BBS	095-246-7910	Leonid Korostelev	2400		Moscow Russia
Kukosha BBS	095-251-3007	Alexander Chemienko	2400	2:5020/82.14	Moscow Russia
Bytic BBS	095-334-5781	Serge Morosov		2:5020/30.8	Moscow Russia
Android BBS	095-535-9486	Andrew Nikulin	2400	2:5020/90	Moscow Russia
DP Project	095-955-2946	Dmitry Peresvetov	2400	2:5020/27.9	Moscow Russia
InfoGlasnost BBS	095-475-1792	Sergey Plais	2400	2:5020/63.6	Moscow Russia
AP-Service BBS	095-314-7428	Alex Pelekhov	2400	2:5020/24.25	Moscow Russia
Cocktail Paradise BBS	095-516-0217	Dim Timoshchenko	2400	2:5020/60.5	Moscow Russia
Diasoft BBS	095-183-3325	Gleb Bulgakov	2400	2:5020/105.26	Moscow Russia
Program Buddy BBS	095-930-8283	Teplitsky Dmitry	2400	2:5020/82.7	Moscow Russia
IST Business BBS	095-143-8725	Albert Zakirov	2400		Moscow Russia
Commodity-Stock Exchange	095-274-0283	Sergey Syasin	2400		Moscow Russia
BWS #1	095-939-3685	Michael Gnatenko	14400	2:5020/54.8	Moscow Russia
C BBS	095-481-9233	Paul Tchistopolskii	2400	2:5020/37.35	Moscow Russia
Project ITRA BBS	095-133-9596	Kyril Shoshnikov	2400	2:5020/49.7	Moscow Russia
Harpoon BBS	095-196-9677	Vladimir Ostroumov	2400		Moscow Russia
Archivarius BBS	095-262-1474	Maxim Ponizovtsev	2400	2:5020/82.16	Moscow Russia
Krakatoa BBS	095-122-5836	Igor Magajmow		2:5020/68.3	Moscow Russia
Eagle BBS	095-353-8768	Dmitry Orel	2400	2:5020/79.3	Moscow Russia
PilotNet BBS	095-943-0040	Anton Polyakov	2400		Moscow Russia
Mike & Nike BBS	095-243-3777	Nike Bedniakov		2:5020/61.13	Moscow Russia
Gold Night BBS	095-387-0886	Dmitry Soloviev	2400	2:5020/102.15	Moscow Russia
TaskMaster BBS	095-166-5927	Alex Wysokolov	2400		Moscow Russia
IVC "GreenTown" BBS	095-534-3643	Vadim Petraev	1200	2:5020/60.101	Moscow Russia
Green Line BBS	095-945-2825	Pavel Leontiev	2400	2:5020/92.3	Moscow Russia
LoveApple BBS	095-446-0456	Alex Lavrenjuk	2400		Moscow Russia
Xpercom	095-248-4636	Dennis Martynov	2400	2:5020/85.2	Moscow Russia
Hamper's BBS	095-238-3384	Eugene Kopaev		2:5020/30.19	Moscow Russia
6-th Floor	095-152-1067	Dmitry Moshalkov	2400	2:5020/17.12	Moscow Russia
PhysTechSoft	095-576-5518	Artem Jdanok	2400	2:5020/84.5	Moscow Russia
Heaven BBS	095-251-5541	Eugin Kondrashov	2400	2:5020/76.2	Moscow Russia
Elebruim BBS	095-210-0879	Poul Tolmachev	2400		Moscow Russia
Little MPSU BBS	095-246-2852	Rod Filipenkov	2400		Moscow Russia
Digital Culture BBS	095-230-1504	Gavrilov Fedy	2400	2:5020/92.12	Moscow Russia
Kleine Schweiz	095-200-1551	Roma Kuzmin	2400	2:5020/48.2	Moscow Russia
Triada BBS	095-250-5417	Seva Orlovsky	2400	2:5020/41.4	Moscow Russia
ABC+	095-323-7133	Evgenij Karnauchoy	2400	2:5020/27.7	Moscow Russia
Eye Microsurgery BBS	095-906-1778	Roman Myzykin	2400		Moscow Russia
Hiala BBS	095-129-2000	Oleg Maksimov	2400	2:5020/91	Moscow Russia
RAA BBS	095-436-9830	Alex Barantsev	2400	2:5020/91.2	Moscow Russia
RTV & DmG BBS	095-245-1137	Alex Chip's			Moscow Russia
Magistral BBS	095-252-2811	Andrey Shulginov	2400		Moscow Russia
Big Mak BBS	095-203-0360	Andrey Titov	2400		Moscow Russia
Cetus BBS	095-271-0911	Sergey Kursky	2400	2:5020/82.21	Moscow Russia
Curious BBS	095-267-1303	Dima Guskov		2:5020/24.32	Moscow Russia
MultiMedia BBS	095-343-4245	Eugin Kondrashov	2400	2:5020/76.8	Moscow Russia
Alice#1	812-528-7765	Dmitry Vorobyov	2400	2:5030/4.12	St.Petersburg Russia



BBS	DATA	SYSOP	SPEED	FIDO#	CITY
Blues BBS	812-275-7226	Mihail Savchenko	2400	2:5030/27	St. Petersburg Russia
Diogen BBS	812-245-6108	Peter Suchkow	2400	2:5030/34.6	St. Petersburg Russia
Dirty Deeds	812-235-3749	Nicolas Rodionov	2400	2:5030/25	St. Petersburg Russia
Gold Zeppelin	812-265-1496	Anthony Guetmansky	14400	2:5030/6	St. Petersburg Russia
VneshSviaz BBS	812-542-1787	Roma Astakhoff	2400		St. Petersburg Russia
Inferno Power	812-157-4958	Cyril Antonov	2400	2:5030/5.10	St. Petersburg Russia
Junior BBS	812-310-1183	Denis Saveljev	2400	2:5030/29.2	St. Petersburg Russia
Last Storey BBS	812-252-3672	Ilya Mikhailov	2400	2:5030/29	St. Petersburg Russia
LB-Info	812-541-8411	Nick Nemirov	2400	2:5030/22	St. Petersburg Russia
Kreit BBS	812-314-4131	Dmitry Klimenkov	14400	2:5030/1	St. Petersburg Russia
Kronverk b. 3S	812-126-6972	Mike Bravo	14400	2:5030/2	St. Petersburg Russia
Nice Landing BBS	812-234-2253	Leonid Yakovlev	9600	2:5030/5	St. Petersburg Russia
Night Breed BBS	812-310-0596	Roman Ignatiev	2400	2:490/20.2013	St. Petersburg Russia
Night Star BBS	812-310-5417	Bob Adlivankin	2400	2:5030/31	St. Petersburg Russia
Nuclear Dragon's BBS	812-559-3019	Victor Mager	2400		St. Petersburg Russia
RTK Chanel BBS	812-104-1835	Dmitry Shirnin	2400	2:5030/34	St. Petersburg Russia
Sen's Smile BBS	812-298-5706	Vitalii Sen	2400	2:5030/14	St. Petersburg Russia
SoftScribe BBS	812-112-9096	Yury Belyakov	2400	2:5030/33	St. Petersburg Russia
Spider's Nest	812-271-1360	Michael Pogrebnyak	2400	2:5030/8	St. Petersburg Russia
Spider's Nest #2	812-271-1337	Michael Pogrebnyak	2400	2:5030/8	St. Petersburg Russia
SPIRE BBS	812-312-6558	Kirill Derevitsky	2400	2:5030/18	St. Petersburg Russia
The Gold Leaves BBS	812-542-3072	Eugene Agapov	2400	2:5030/41	St. Petersburg Russia
Tower BBS	812-248-8189	Alexander Tabanainen	2400	2:5030/36	St. Petersburg Russia
VicTor's Station	812-177-5397	Victor Terechov	2400		St. Petersburg Russia
Warlen	812-186-0786	Oleg Kuzin	2400	2:5030/7	St. Petersburg Russia
Wings BBS	812-108-5610	Alexander Samokhvalov	2400	2:5030/29.3	St. Petersburg Russia
44 (4 lines)	812-222-8499	Serge Horuzhov	2400		St. Petersburg Russia
Aurora	812-567-7131	Dima Prohorov	2400		St. Petersburg Russia
Hacker's Night System #1	014-244-2143	Tarmo Ausing	14400	2:490/1	Tallinn Estonia
Hacker's Night System #2	014-260-1818	Tarmo Ausing	2400		Tallinn Estonia
New Age System	014-260-6319	Tanel Raja	14400	2:490/12	Tallinn Estonia
The Flying Disks	014-268-4911	Margus Sutt	2400	2:490/13	Tallinn Estonia
Dark Corner BBS	014-249-2280	Priit Kasesalu	16800	2:490/14	Tallinn Estonia
Call of Die	014-252-5869	Taivo Talkop	2400	2:490/16	Tallinn Estonia
Goodwin BBS	014-244-3557	Sulo Kallas	14400	2:490/20	Tallinn Estonia
M.A.S.H. Board 1	014-266-6955	Madis Kaal	2400	2:490/30	Tallinn Estonia
M.A.S.H. Board 2	014-253-2119	Aare Tali	2400	2:490/31	Tallinn Estonia
Lion's Cave	014-253-6246	Andres Lepp	14400	2:490/70	Tallinn Estonia
Eesti BBS #1	014-242-2583	Lembit Pirn	14400		Tallinn Estonia
Space Island BBS	014-245-1611	Edward Smart	2400		Tallinn Estonia
INREKO on-line	014-249-2154	Lembit Laanso	2400		Tallinn Estonia
sMAIL	014-245-4592	Andrus Aaslaid	1200	2:490/35	Tallinn Estonia
ElectroBBS #1	014-261-2336	Eero Tohver	2400	2:490/36	Tallinn Estonia
The Pink Rabbit	014-255-7847	Kaido Karner	2400	2:490/43	Tallinn Estonia
MESO BBS	014-343-3434	Viljo Allik	2400	2:490/60	Tartu Estonia
BeSIDE BBS	014-343-1995	Margus Varton	2400	2:490/95	Tartu Estonia
SFG BBS	057-220-2573	Sergey Gorliak	2400	2:461/21	Kharkov Ukraine
Big Muzzy	057-243-3084	Valery Rabinovitch	2400	2:461/23	Kharkov Ukraine
Garry BBS	057-226-0336	Igor Kuzmenko	2400	2:461/25	Kharkov Ukraine
IIN BBS	057-222-8427	Roma Chernov	2400	2:461/14	Kharkov Ukraine
VEGA BBS	057-221-0555	Vadim Garbooze	2400	2:461/30	Kharkov Ukraine
D-t-S BBS	057-223-2994	Andrey Gerasimov	2400	2:461/33	Kharkov Ukraine
InfoCom	057-223-5102	Galina Faraonova	2400	2:461/1.851	Kharkov Ukraine
Sovok BBS	057-243-7011	Michail Vostrov	2400	2:461/22	Kharkov Ukraine
Post Square #1	044-417-5700	Vladimir Leeman	9600	2:463/1	Kiev Ukraine
Software Bank BBS	044-266-9085	Vladimir Zagorovsky	2400	2:463/4	Kiev Ukraine
Mission BBS	044-244-6296	Oleg Mikitenko	1200	2:463/5	Kiev Ukraine
Intelligence Games Service	044-559-6764	Vladimir Potabenko	2400	2:463/20	Kiev Ukraine
The Third Level BBS	044-276-2295	Max Nefedchenko	2400	2:463/33	Kiev Ukraine
Iron Box BBS	044-435-2066	Sergey Volick	1200	2:463/40	Kiev Ukraine
Karlsson Tiny BBS	044-430-4900	Karlsson Sergej	2400	2:463/50	Kiev Ukraine
TISNet BBS	044-213-8122	Vitali Shtabovenko	2400	2:463/55	Kiev Ukraine
Software Service BBS	044-290-4302	Vitalik Slipchenko	9600	2:463/57	Kiev Ukraine
MiKroB Point BBS	044-268-9168	Fil Grushevsky	2400	2:463/34	Kiev Ukraine
Pulsar BBS	044-225-5675	Miroslav Ivensky	2400	2:463/17	Kiev Ukraine
ParaMount BBS	044-417-0751	Sergey Stepanenko	14400	2:463/31	Kiev Ukraine
Mercury BBS	044-244-8298	Sasha Polenov	2400	2:463/19	Kiev Ukraine
MONOLIT BBS	044-294-6691	Ruslan Belkin	2400	2:463/23	Kiev Ukraine

BBS	DATA	SYSOP	SPEED	FIDO#	CITY
Small Star BBS #2	044-244-6878	Beloborodov Vadim	2400	2:463/36	Kiev Ukraine
SpeCom BBS	044-291-8602	Alexandr Kolosov	2400	2:463/15	Kiev Ukraine
LTD BBS	044-419-1472	Oleg Fesen	2400		Kiev Ukraine
Hunter BBS	042-224-1484	Michael Karpov	2400	2:469/1	Kishinev
ADD/station	042-224-0539	Youri Koroban	2400	2:469/10	Kishinev
Stork BBS	042-223-4186	Valerian Levinsky	2400	2:469/20	Kishinev
Minas Ithil BBS	042-225-3238	Vladimir Kartsev	2400	2:469/36	Kishinev
Berg BBS	042-226-3743	Igor Vaysenberg	2400	2:469/7	Kishinev
Hacker's Sabbath	042-262-5853	Serg Kurdoglo	2400	2:469/35	Kishinev
CoPirate BBS	042-222-6483	Slava Filimonov	2400	2:469/33	Kishinev
Micado's BBS	056-246-0073	Michael Pozin	2400	2:464/10	Dniepropetrovsk
Modern Traveller BBS	056-242-5901	Gena Rez	2400	2:464/2	Dniepropetrovsk
TestOfRoots	056-246-4823	Alex Timoshenko	1200	2:464/3	Dniepropetrovsk
Dniepr BBS	056-244-1078	Vadim Getmanshuk	2400	2:464/4	Dniepropetrovsk
Six Mizzle BBS	017-277-2804	Igor Scherbakov	2400	2:466/20	Minsk Byelorussia
VTI BBS	017-226-5457	Kirill Matveyonok	1200	2:466/90	Minsk Byelorussia
Wizard City	017-270-6003	Irina Dunaeva	2400		Minsk Byelorussia
MerryLand BBS	017-223-7014	Artyom Churko	2400	2:466/80	Minsk Byelorussia
Advanced Information Tech.	383-223-7222	Vitaly Klocho	2400	2:5000/1	Novosibirsk Russia
Prolog BBS	383-276-4396	Andrey Vokhmianin	2400	2:5000/2	Novosibirsk Russia
Sprite's mail BBS	383-235-1372	Serge Terekhov	2400	2:5000/13	Novosibirsk Russia
No Earthly Connection	383-235-4310	Vladimir Lebedev	2400	2:5000/20	Novosibirsk Russia
CAD BBS	383-266-1682	Vorobyev Bob	2400		Novosibirsk Russia
V&V BBS	383-222-1978	Vadim Polyakoff	2400	2:5000/12	Novosibirsk Russia
Yellow Submarine I	383-235-4074	Yura Svetlanov	2400	2:5000/15	Novosibirsk Russia
Siberian Ghost	383-235-0461	Nikolay Buslaev	2400	2:5000/17	Novosibirsk Russia
The Yellow House	391-221-0136	Arkady Bundakoff	9600	2:5000/4	Krasnoyarsk
Crass BBS	391-243-9619	Roman Krasnov	2400	2:5090/10	Krasnoyarsk
Dialogue Siberia BBS	391-222-1483	Dmitry Maryasov	2400	2:5090/13	Krasnoyarsk
Hole of Alone Lion	391-725-9787	Evgeny Larionov	2400	2:5000/22	Abakan
PsychodeliQ Hacker Club #1	351-237-4550	Yuri PQ (Potapuke)	2400	2:5010/2	Chelyabinsk Russia
PsychodeliQ Hacker Club #2	351-237-4546		2400		Chelyabinsk Russia
JV Ural Dialogue BBS	351-233-6644	Konstantin Yudaev	2400	2:5010/3	Chelyabinsk Russia
School#31	351-233-0065	Alexander Pogodin	2400	2:5010/7	Chelyabinsk Russia
Wrong Weather System	351-239-9127	Paul Michnukevich	1200	2:5010/9	Chelyabinsk Russia
SURPrize BBS	351-242-0925	Nickolay Golubkov	2400	2:5010/11	Chelyabinsk Russia
Glasha BBS	351-239-9616	Michael Poponin	2400		Chelyabinsk Russia
Wolfbox BBS	012-773-0134	Zygmantas Cepaitis	9600	2:470/1	Kaunas Lithuania
Villa Metamorph BBS	012-779-1666	Martynas Buozis	2400	2:470/5	Kaunas Lithuania
Kaunas #7 Carillon BBS	012-720-0274	Darius Liaugaudas	2400	2:470/7	Kaunas Lithuania
KTU Automatic Faculty BBS	012-775-7603	Saulius Raila	2400	2:470/11	Kaunas Lithuania
Lira BBS	012-770-6956	Sergey Schepetnov	2400	2:470/100	Kaunas Lithuania
LiraGate BBS	012-770-9813	Sergey Schepetnov	2400	2:470/101	Kaunas Lithuania
Righteam	012-770-9815	Sergey Schepetnov	2400	2:470/105	Kaunas Lithuania
GRANIT BBS	012-726-9170	Vigintas Lopas	2400	2:470/110	Kaunas Lithuania
ATRAMA BBS	012-726-1117	Vidmantas Rajuncius	2400	2:470/111	Kaunas Lithuania
EXCHANGE Data	012-772-8541	Valdas Novapolskas	2400	2:470/115	Kaunas Lithuania
Panacea BBS	012-262-8809	Giedrius Vegys	2400	2:471/1	Vilnius Lithuania
Iron Wolf BBS	012-222-0624	Eduardas Beliauskis	2400	2:471/2	Vilnius Lithuania
Elta BBS	012-222-2222	Gediminas Krunglevicius	2400	2:471/3	Vilnius Lithuania
Amber Way BBS	012-222-7194	Robertas Sileikis	9600	2:49/11	Vilnius Lithuania
Spectrum	012-222-6381	Lex Jancevich	2400		Vilnius Lithuania
Baltic Comp. Center	012-261-8364	Andrunas Listopadskis	2400		Vilnius Lithuania
Node 30	012-262-9817	Gintautas Balciunaitis	2400		Vilnius Lithuania
HTA BBS	012-222-1698	Darius Simanuskas			Vilnius Lithuania
UFO BBS	013-232-3983	Ugis Berzins	2400	2:495/10	Riga Latvia
LIA BBS #2	013-227-1008	Alfreds Belavskis	2400	2:495/12	Riga Latvia
Silava-Info	013-294-2550	Juris Bekins	2400	2:495/20	Riga Latvia
GoSaiva BBS	013-276-4865	Slawa Goroshkoff	2400	2:495/17.171	Riga Latvia
RVT BBS	013-232-5850	Haralds Jakovels	2400	2:495/17	Riga Latvia
F-40 BBS	013-227-3740	Andy Rucinsh	1200	2:495/23	Riga Latvia
Talsu TELEKOM BBS	013-322-3699	Arvis Cimermanis	2400	2:495/21.10	Riga Latvia
Hacker Wolf System	341-225-0557	Alex Yudin	2400	2:5010.2	Izhevsk Russia
Tiny Software BBS	341-220-8365	Oleg Ohotnikov		2:5050/6	Izhevsk Russia
Consul Soft BBS	341-278-4622	Alexey Toporov	2400	2:5050/1.28	Izhevsk Russia
Conchita	395-246-1718	Anatoly Mashanov	2400	2:5070/10	Irkutsk
Esperansa	395-233-5514	Vladimir Dolgikh	2400	2:5070/4	Irkutsk
MicroBug's Station	093-232-1044	Dmitry Kiselev	2400	2:5020/21	Ivanovo Russia

BBS	DATA	SYSOP	SPEED	FIDO#	CITY
Keypresser's Den BBS	421-034-2708	Valery Shishkov	2400	2:5040/1	Khabarovsk Russia
Magic Wood BBS	421-033-5762	Igor Nesteroff	2400	2:5040/2	Khabarovsk Russia
Wel(C)ome BBS	421-033-6526	Dima Tkachenko	9600	2:5040/6	Khabarovsk Russia
Consul. BBS	421-038-8176	Dmitry Dmitriev	2400	2:5040/10	Khabarovsk Russia
Fact-INFO NewEnterprise	421-033-5652	Evgene Matviyevsky	2400	2:5040/11.3	Khabarovsk Russia
Hot Space BBS	421-033-7036	Vexler Gennady	2400	2:5040/11	Khabarovsk Russia
Cowex BBS	421-021-2757	Sergey Jaskin			Khabarovsk Russia
Slon BBS	836-211-5073	Igor Kolupaew	2400	2:5050/10	Joshkar-Ola
Queen BBS	836-211-5561	Oleg Garov	2400	2:5050/12	Joshkar-Ola
I&O BBS	032-259-9260	Pavel Godlevsky	1200	2:47/13	Lvov Ukraine
Trash BBS	048-268-0984	Gena Rashkovich	2400	2:467/30	Odessa Ukraine
The Black Hole BBS	048-222-4971	Alexander Ivanov	2400	2:467/50	Odessa Ukraine
Diona BBS	048-222-3956	Leonid Kulbiy	2400	2:467/40	Odessa Ukraine
Golden Domes BBS	092-227-9920	Vladimir Maksimov	2400	2:5030/46	Vladimir
Antiqua Lion BBS	092-227-8702	Anatoly Maximov	2400		Vladimir
Nostradamus	052-352-4879	Nick Shevchenko	2400	2:463/200	Alexandria
Enterprise BBS	345-954-1242	Oleg Moroz	2400		Nadym Russia
Ekaterinberg 1-stBBS	343-256-0347	Sergey Zavoronkoff	2400	2:5080/1	Ekaterinburg
Ural Data BBS	343-251-7184	Alex Cooklin	2400	2:5080/2	Ekaterinburg
Ural Broker's House BBS	343-256-0455	Ludmila Sharlo	2400		Ekaterinburg
Conus BBS	343-244-8408	Sergey Solovey	2400	2:5080/2.3	Ekaterinburg
InformDesign BBS	343-272-8589	Igor Kazantsev	2400	2:5080/2.13	Ekaterinburg
The Fast Train	343-258-3173	Serge Vikulov	2400	2:5080/5	Ekaterinburg
Relax Station BBS	842-225-7341	Boris Tynkov	1200	2:5030/12.100	Simbirsk Russia
OOP'S BBS	842-231-2813	Ugeen Koshelev	14400	2:5030/12.101	Simbirsk Russia
Onix BBS	371-254-8498	Alexander Steklyanov	2400	2:466/1.12	Tashkent Uzbekistan
InKa BBS	371-268-6660	Vadim Zubanov	2400		Tashkent Uzbekistan
CRC Error BBS	831-224-0292	Valdov Dmitry	2400	2:5015/2	Nizhny Novgorod
Foggy Planet	831-235-0266	Sergey Baranov	2400	2:5015/1.6	Nizhny Novgorod
HIT!	835-021-2310	Vladimir Sivov	2400	2:5050/40	Cheboksary
RSS Station	835-023-8096	Sergey Antonov		2:5050/40.24	Cheboksary
Kazakhstan Communication	327-263-5539	Boris Leskin	2400	2:50/306	Alma-Ata
Space Falcon BBS	327-261-2268	Igor Shtork	2400		Alma-Ata
AEE BBS	327-232-3936	Valery Votintsev	2400		Alma-Ata
ADC BBS	818-007-7985	Oleg Kudinov	1200	2:5031/2	Archangelsk
Tree Factory BBS	818-001-1995	Oleg Kalyamin	2400	2:5020/34.10	Archangelsk
Submarine BBS	818-462-3586	Oleg Laptev	2400	2:5031/3	Severodvinsk
Far East Woodpecker BBS	231-004-4295	Sergey Monin	2400	2:5040/7	Komsomolsk-na-Amure
Yellow Submarine II	863-444-4625	Alexander Redkozubov	2400	2:5060/2	Taganrog
Wish You Were Here	863-444-2234	Yuri Kurenkov	2400	2:5060/2.3	Taganrog
Wild Card BBS	318-072-0940	Harry Martemyanov	9600	2:50/500	Pavlodar Kazakhstan
S&Y	862-245-3317	Alexander Ovcharenko	2400	2:5020/78.100	Sochi
Ghost Hall BBS	423-226-8818	Alexey Yashin	2400	2:5045/10	Vladivostok
Paradise BBS	423-226-6336	Alex Smelik	2400	2:5045/2	Vladivostok
West Point BBS	011-243-2686	Maximka Kadenkin	2400	2:478/1	Kaliningrad
FireBall	011-244-3923	?	2400	2:478/2	Kaliningrad
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SBIS BBS	821-222-7650	Andrey Morozov	2400	2:5030/5.32	Syktivkar Komi
Atomix BBS	863-929-7706	Alexander Bezborodov	2400	2:5020/33.13	Volgodonsk
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Nariani BBS	883-295-0073	Nodari Agdgomelashvili	2400	2:446/1	Tbilisi
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Holy Father BBS	379-226-5527	Alex Vostrikov	2400	2:5050/10.102	Tadgikistan
Tiger Claw BBS	317-222-4482	Stas Kiselev	2400	2:5000/30.3	Akmola, Kazakhstan
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Nuclear Bog BBS	082-552-1285	Alexander Klink	2400	2:5020/46.16	Udomlya
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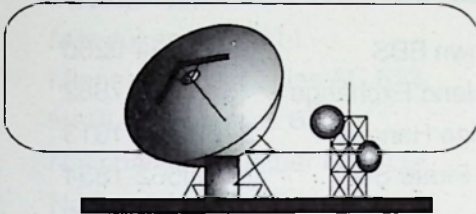
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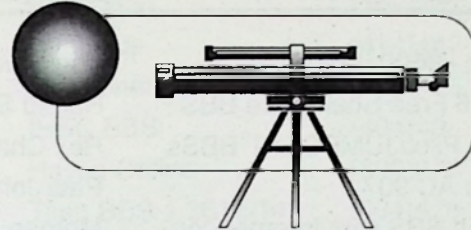
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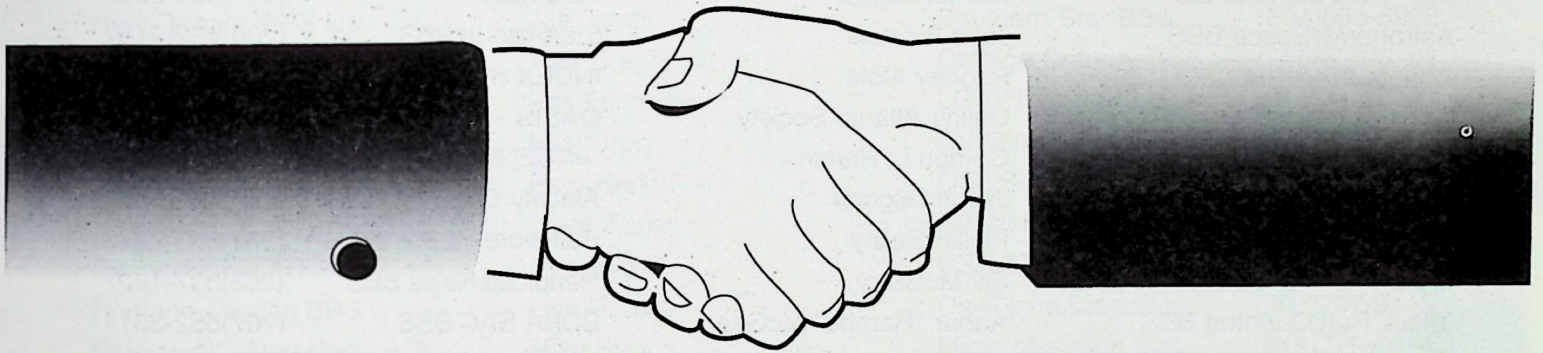


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
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
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
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LIST OF BBS LIST KEEPERS

This listing comprises a list of those who compile and maintain lists of bulletin boards, either by topical category, or by some geographic area or definition - often by area code. The primary bulletin board system where the list can be downloaded electronically is also included.

BBS LIST TOPIC	LIST AUTHOR/EDITOR	CONTACT BBS	TELEPHONE
96 List - 9600+bps BBS	Ken Sukimoto	Downtown BBS	(213)484-0260
AC 516 Free Shareware BBS	Harold Stein	Long Island Exchange	(516)385-7882
Airline Pilot/JUMPSEAT BBSs	Rex Chadwell	ChicAAgo Hangar	(708)980-1613
Alaska AC 907	Patti Johnson	Alaska Pirate Soc.	(907)562-1854
Apple II BBS with Internet con	Morgan Davis	pro-sol	(619)670-5379
Area Code 517 - Mid-Michigan	Rick Rosinski/SAMM	Wolverine BBS	(517)695-9952
Arkansas Area 501	Bob Underdown	The Gaslight BBS	(501)444-8420
ASP BBS Member List	Bob Ostrander	PBS-BBS	(317)856-2087
Astronomy/Space BBS	John Pickens	Starbase III BBS	(209)432-2487
Atlanta Area 404	Rodney Aloia	INDEX System	(404)924-8472
Atlanta Area 404	Online Atlanta Society	OASIS	(404)627-2662
Austin Area BBS List AC 512	Gordon L. Harlan	--ACE*BBS--	(512)258-9553
Autocad Related BBS	Jason Osgood	Alacrity BBS	(206)643-5477
Baltimore Area 301	Phillip Bailey	Baltimore BBS News	(301)633-7870
BBS With Handicapped Focus	Bill McGarry	Handicap News BBS	(203)337-1607
Black Run/Oriented BBS	Arthur "Rambo" McGee	BDPA BAC BBS	(707)552-3314
Business/Professional BBS	Dennis Hauser	Delight The Customer	(517)797-3740
California AC 310	Jim Walton	Illusions BBS	(310)804-3324
Central California AC 209	Jack Porter/Madera UG	Zen Den Systems	(209)675-8436
Central California Area 805	Larry Honore	His Board	(805)652-1478
Chicago	David Nathan	HURK BBS	(708)801-0823
Chicago	Paul Chartraw	Stillwaters	(708)403-2826
Cleveland Area 216	Eric Rickin	Wine Cellar	(216)382-2558
Commodore 64/128/Amiga BBS	John Rigali	Scream BBS	(818)287-4570
CompuCom Modem BBS List	Thomas Weathers	Referral Market BBS	(803)297-4395
Connecticut AC 203	Kevin Brook	Creative Edge BBS	(203)743-4044
Conservation/Nature BBS List	D.Wendling/JS Christianso	Coin of the Realm	(301)585-66
Dallas/Ft Worth Area 214/817	Mark Robbins	Second Sanctum	(817)784-1178
Darwin National USBBS List	Bob Breedlove	Bob's BBS	(916)929-7511
Desktop Publishing BBS	Frank Atlee	Infinite Perspective	(301)924-0398
Detroit Area 313	Horst Mann	Tony's Corner	(313)754-1131
Ecology/Conservation BBS	Bob Chapman	EarthArt BBS	(803)552-4389
Engineering Related BBS	Arthur Petrzeka	Computer Plumber	(319)337-6723
Geneology Related BBS	Richard A. Pence	NGS-CIG	(703)528-2612
Graphical User Interface BBS	David Shapiro	The Gooey (GUI) BBS	(212)876-5885
Ham/Amateur Radio BBS	Stan Staten	3WINKs BBS	(301)590-9629

BBS LIST TOPIC	LIST AUTHOR/EDITOR	CONTACT BBS	TELEPHONE
Handicapped Issues BBS	Richard Barth	HEX BBS	(301)593-7357
Houston Area 713	David E. Wachenschwanz	Atomic Cafe BBS	(713)530-8875
Kansas City Area 816/913	Roy Timberman	Sound Advice	(816)436-4516
Kitsap County Washington	Michael Schuyler	Quicksilver BBS	(206)780-2011
List of Gay/Lesbian BBS	Eric Blair	S-TEK BBS	(514)597-2409
Macintosh BBS	Bill Taylor	Fort Mill Tabby	(803)548-0900
Medical Issues BBS	Edward Del Grosso	Black Bag	(302)731-1998
Milwaukee Area 414	Jay Jadofsky	Priplanus	(414)442-0170
Minnesota Twin Cities AC 612	Barry Watson	Abiogenetic BBS	(612)489-7983
NAPLPS Graphics BBS	Ed Pimentel	IHBC BBS	(404)498-4254
National 800 Number BBS List	Michael Long	Hayes Online	(800)874-2937
National Adult BBS List	Clayton Manson	Titan BBS 1:3612/140	(904)476-1270
National BBS List	DP McIntire/Beth Spotts	Ameriboard	(412)349-6862
New Jersey AC 609	Dave Schubert	The Casino PCBoard	(609)561-3377
New Jersey Area 201/609/908	Wayne R. Morton	Praedo BBS	(609)953-0769
New Orleans BBS List	Jeff Jones	Southern Star BBS	(504)885-5928
Ontario Area 705	Alex Draper	Cottage Country BBS	(705)835-6192
Open Access UNIX Site List	Phil Eschallier	LGNP1 (login:BBS)	(215)348-9727
Orlando Florida AC 407	Matt Drury	London BBS	(407)423-5226
OS/2 BBS Systems	Pete Norloff	OS2/Shareware BBS	(703)385-4325
OS/2 Related BBS	Dave Fisher	LiveNet 1:170/110	(918)481-5715
Pennsylvania AC 215	Ron Brandt	DSC BBS	(215)443-5830
Portland Oregon BBS	Lisa Gronke	DawGone Disgusted	(503)297-9145
Raleigh NC Area Code 919	Mike Stroud	Micro Message Svc.	(919)779-6674
Republic of South Africa	Henk Wolsink	Catalyst BBS	(041)34-1122
Rhode Island Area 401	Mike Labbe	Eagle's Nest	(401)732-5292
Rochester NY AC 716	Tracy Logan	Logan's Run	(716)256-2659
San Diego. CA AC 619	Ron Dipold	Computer's Edge	(619)573-1675
San Francisco Area 408/415/510	Julie McGrew	Bay List BBS	(510)339-1045
Seattle AC 206/West Washington	Bob Dinse/Nanook	Eskimo North	(206)367-3837
Selected BBS	Joseph Caplinger & Son	J&J's BBS	(513)236-1229
South Florida Area 305/407	Eric Thav	Silicon Beach BBS	(305)474-6512
Southern California	Mike Hefferman	SOCAL Corner	(213)422-7942
St. Louis AC 314	Beth Brooks	Offworld BBS	(314)579-0700
Tacoma Washington AC 206	Richard Langsford	AmoCat BBS	(206)566-1155
Technical Support BBS List	Gary Barr	Digicom BBS	(812)479-1310
The List National BBS List	James Toro	PDSLO (The List)	(516)938-6722
Tulsa Oklahoman Area BBS List	Linda Hargraves	Access America	(918)747-2542
U.S.S.R. BBS List	Serge Terekhov	Court Crimson King	7-3832-356722
Virginia AC 703/804	Scott Dickinson	TOSOR BBS	(703)366-4620
Washington DC BBS List	Mike Focke	Interconnect	(703)425-2505
Wildcat! BBS	Jim Harrer	Wildcat! HQ	(805)395-0650
Wisconsin 608		JW-PC Dataflex.HST	(608)837-1923

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Chat Chalet (201)791-8850 Saddle Brook New Jersey since 04/91. Sysop: Ron Meier. Using Major BBS 5.31 with 16 lines on MS-DOS 80386 with 120 MB storage. Supra at 2400 bps. \$10.00 Monthly fee. Chat System. Send us your picture we will make it a Gif and put it on the BBS for all to see. "Where New Friends Meet"

Jezebel's Parlour BBS (201)927-2932 Flanders New Jersey since 04/92. Sysop: Beverly Delisa. Using TBBS 2.2M with 12 lines on MS-DOS 80386 with 120 MB storage. U.S. Robotics at 9600 bps. \$50.00 Annual fee. Over 3 gigabytes of files, including adult graphics. New in-house scanned Gif files added each week. Online games and databases, user to user chat, conference areas, and adult matchmaking. The BBS with the feminine touch.

THE RED PHONE NETWORK (212)924-1138 New York NY since 09/88. Sysop: Chris Welber. Using PCBoard 14.5a with 6 lines on MS-DOS 80486 with 3200 MB storage. U.S. Robotics at 14400 bps. \$45 Annual fee. Runs on a local area network with RIME, Smartnet & Intelc mail networks. CD-ROM. Custom PC and network support and service. Novell, Lantastic and communications. Visa, Mastercard and Discover accepted. Free voice hotline (212)924-6899

The Westside (213)933-4050 Los Angeles California since 04/87. Sysop: Dave Harrison. Using Metropolis 1.06b with 70 lines on Qnx with 5000 MB storage. AMT 2400 at 2400 bps. \$57 Monthly fee. One of LA's friendliest, largest and most active Adult bbses! Chat Online Games Windows Shareware Files 25,000+ Gifs Animations Adult Stories Public Forums More! 4000+ Members. Special Disabled Vet Senior Student Rate. FREE Trial for Boardwatch Readers!

The B-C-S BBS (213)962-2902 Los Angeles California since 02/92. Sysop: Bill Weinman. Using WildCat 3.55P with 4 lines on MS-DOS 80486 with 2500 MB storage. U.S. Robotics at 16800 bps. \$52 Annual fee. Los Angeles Area Code. Four High Speed Modems (DS) and growing. Gigs of Files. The latest Files added every day. Robocomm, Qsoftware support. Intelligent Conversations. Excellent Conferences, Many Online Services, Home of CalNet. Free Access. Come Join.

The Anterra Network (215)675-3851 Hatboro Pennsylvania since 03/90. Sysop: Steve Ferguson. Using WildCat! 3.52 with 5 lines on MS-DOS 80486 with 3600 MB storage. U.S. Robotics at 19200 bps. \$5 Monthly fee. The Philadelphia Area's Best BBS! Basic Access is free, so give us a call! Over 24,000 Files & 38,000 Messages from 6 National Networks Online. Many online games (some Multi-User Real Time). "The Best Game of Trade Wars in the 215 Area Code".

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The GaRBaGe DuMP BBS (303)457-1111 Denver, CO & Albuquerque, NM since 12/90. Sysop: Simon Clement/Dean Kerl/David Kerl. Using Galacticom MBBS 5.31 with 41 lines on Dual 486 LAN Server with 850 MB storage. Supra at 14400 bps. \$ FREE 90 Days fee. Access in Albuquerque: 505-294-5675 FREE w/Validation Form. INSTANT Validation with Visa/MC. Online ADULT CHAT, files, multiplayer games, UNCENSORED SIGS. 1200+ Calls/Day, PURSUITABLE. Our motto says it all: CAUTION! ADULTS AT PLAY! Voice 505-294-4980. ublishing; download information on the "RED SQUARE RUN", a 10k race in Moscow on 23 May 1992!

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Pinecliffe BBS (303)642-7463 Pinecliffe Colorado since 01/82. Sysop: Craig Baker. Using Ultrabbs 2.09Beta with 14 lines on MS-DOS 80386 with 9500 MB storage. U.S. Robotics at 14400 bps. No fee. Largest BBS in Rocky Mtn Area. FREE (\$20/yr gets 2hrs/day. \$100 Lifetime membership.) 60,000 zips. CD-Roms online. Games. Home of CDBREG - allows immediate upgrades with credit card. Sysop also runs a computer store. Night Owl \$49. Come help us grow!

Data Point (303)973-9454 Denver Colorado since 01/83. Sysop: Gary W Funk. Using TBBS 2.2M with 1 line on MS-DOS 80386 with 1100 MB storage. U.S. Robotics at 14400 bps. \$30 Annual fee. Online publications, and multi-player games. Large library of SDN, SDS, and TDN files. Support for MS-DOS. TBBS, TDBS, TMS and TMail support. NetWork and FidoNet message areas.

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Nitelog BBS (408)655-1096 Monterey California since 02/89. Sysop: Karl Van Lear. Using PCBoard 14.5a with 14 lines on MS-DOS 80486 with 4900 MB storage. U.S. Robotics at 19200 bps. \$18 Quarterly fee. DOS Windows OS2 & ADULT files. Email Conferences. Internet, Usenet, Rime, ILink. For v.32bis call 655-8294. For USR HST call 655-8297. VISA, MasterCard, Discover & American Express accepted. Register/Subscribe Online.

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SHARPENIT! RBBS (413)786-4706 Agawam Massachusetts since 03/91. Sysop: Michael Scantlen. Using RBBS 17.4A with 2 lines on MS-DOS 80486 with 1000 MB storage. ZOOM VFX V42 V32 at 14400 bps. \$15.00 Annual fee. Multi-Line Family BBS Serving Small Business and the Community. Over 1.0 GB available with Low \$15/Year Membership. Basic Access No Charge. Featuring Echomail Conferences, Theater, Games, EMS-FIRE, Weather-Alert. Official APOGEE NODE #500

Greenpeace - Envrionet (415)512-9108 San Francisco California since 01/88. Sysop: Dick Dillman. Using TBBS 2.2M with 6 lines on MS-DOS 80286 with 100 MB storage. U.S. Robotics at 2400 bps. No fee. Your source for information about Greenpeace and the environment. Conferences on Toxics, Energy, Forests, Disarmament and more. Greenpeace press releases updated daily. Never a fee, new users welcome!

Baudeville BBS (416)283-0114 Toronto Ontario Canada since 03/92. Sysop: Ian Evans. Using PCBoard 14.5a with 2 lines on MS-DOS 80386 with 2000 MB storage. U.S. Robotics at 14400 bps. \$36 Annual fee. 1200 Usenet areas, RIME, Intelc, Nanet, C2C, Racenet, RF-Net, Throbnat, Medianet, Fidonet. 2+ gigs of files. Over 2200+ conferences. Internet mail. Fido: 1:250/304. The Economical Email Emporium. \$48 membership gets you \$185 in hw/sw coupons!

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Cul-de-Sac Bar & Grill (508)429-1784 Holliston Massachusetts since 03/85. Sysop: Pete White. Using TBBS 2.2M with 5 lines on MS-DOS 80286 with 380 MB storage. U.S. Robotics at 14400 bps. \$45 Annual fee. The home of many TBBS/TDBS software packages, and an almost continuous beta site for many TBBS/TDBS software authors. Like Ben Cunningham's 10,000 message system with full screen editing and quoting, and Jeff Johnson's On-Line Sales Manager.

America's Suggestion Box (ASB) (516)471-8625 Ronkonkoma New York since 02/92. Sysop: Joe Jerszynski. Using TBBS 2.2M with 8 lines on MS-DOS 80486 with 2200 MB storage. U.S. Robotics at 14400 bps. No fee. 13000+ files, ASP approved with a rapidly expanding filebase, Boardwatch, USA Today, ODMR, Video Online. Would you like to see a computer product or service improved? Come see why you and ASB can make a difference! Generous access time & download priv.

The Game Peddler BBS (516)493-0186 Commack New York since 09/88. Sysop: John Sirabella. Using WildCat! 3.5P with 5 lines on MS-DOS 80486 with 3600 MB storage. U.S. Robotics at 19200 bps. \$25 Annual fee. What do you get if you cross THE GAME PEDDLER BBS and FISHING? One call and your hooked! Find many thousands of files, 64 Conferences, 50 Doors and 90+ Bulletins. Give us a call today and find out what you have been missing!

House Of Files BBS (516)938-6722 Hicksville New York since 08/85. Sysop: Jim Toro. Using TBBS 2.2 with 24 lines on MS-DOS 80486 with 9900 MB storage. Supra at 19200 bps. \$50.00 Annual fee. Largest file system in New York. Over 100,000 files ALWAYS online. Over 10,000 music files, 10,000 public domain clip art files at tens of thousands of others. Call us and find out why hundreds of sysops subscribe to our system. Browse around for free!

Wolverine (517)631-3471 Midland Michigan since 07/88. Sysop: Rick Rosinski. Using Searchlight 2.25C with 4 lines on MS-DOS 80486 with 6000 MB storage. U.S. Robotics at 19200 bps. \$35 Annual fee. Mid-Michigan's Largest BBS with over 50,000 files & SEVEN CD-ROM's! Special support for Windows/DESVIEW/Music/Games/Utils/Amiga. Now THE Official Support BBS for SkyGlobe. ASP-Approved/ModemNews NewsStand/MVP Software Distribution Site

The Adult File Cabinet BBS (517)792-4680 Saginaw, Michigan since 01/91. Sysop: Ronald Gage. Using PCBoard 14.5a/E3 with 2 lines on MS-DOS 80386 with 1500 MB storage. U.S. Robotics at 14400 bps. \$30.00 Annual fee. Large Adult BBS, Visa/MC subscription (\$5.00 surcharge). File trades available, friendly operator and atmosphere. 90 minutes a day for subscribers, no download limits or ratios to bother with. Color scanning available.

AIS Multiline (604)489-4206 Cranbrook, BC Canada since 03/89. Sysop: Chris Pinnell. Using Galacticom 5.31 with 4 lines on MS-DOS 80386 with 1200 MB storage. U.S. Robotics at 16800 bps. \$5.00 Monthly fee. A great place to meet new people. AIS Multiline is one of the fastest growing BBSes in western Canada, offering 2 CD Roms to download from, as well as the latest files from ASP authors, Teleconferencing, friendly users, on-line games - ASK FOR FREE TIME

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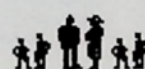
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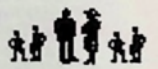
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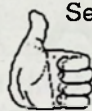
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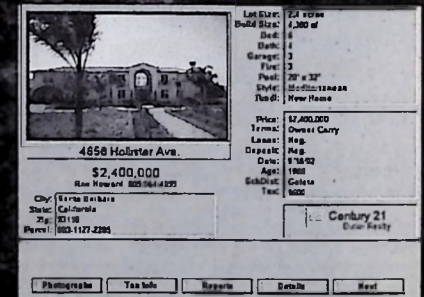
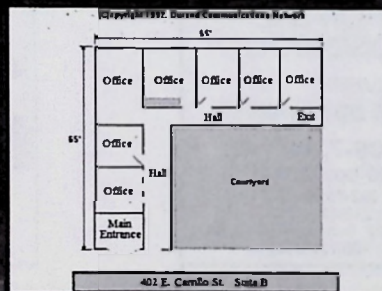
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chinel	(317)359-5199	UNIX System offering Internet Mail	George Matyaszek	Benwyn, IL
Classi Computer Fields	(619)566-7347	Online System for Classified Advertisements	Randy Sueess	Chicago, IL
Classified Connection BBS	(216)368-3888	Gifts Girls - Nude GIF Images of the Girl Next Door	Steve Edsall/Trader Newspaper	Indianapolis, IN
Cleveland Freenet	(719)520-5000	Cleveland City Info/Public Library - Free Internet Mail Box	Bill Kennon	San Diego, CA
Community News Service (CNS)	(703)765-0501	News and Entertainment - 17 Lines Community Focus	Case Western University/AT&T/Ohio Bell	Cleveland, OH
CommunityLink @DCWAS	(415)824-7603	DC Tour Info. & Help. Online Publications, Treknet, Fidonet	Klaus Dimmler	Colorado Springs, CO
Compact Audio Disk Exchange	(714)396-0014	Buy/Sell/Trade Compact Audio Disks Online	Wayne Rutledge/Bob Burnett	Alexandria, VA
Computer Business Services	(708)795-4442	Book/Publishing Consultant Nick Anis' BBS	Wayne Gregori	San Francisco, CA
Computer Garden	(301)546-1508	Treasure Hunting - Metal Detectors - Online Catalog	Nick Anis Jr.	Diamond Bar, CA
Computerized Bulletin Board Sys	(708)849-1132	First Electronic Bulletin Board - Creator of XMODEM Protocol	Milford P. Webster	Salisbury, MD
Computing Canada Online	(416)497-5263	Adjunct to Excellent Canadian PC Newspaper	Ward Christensen	Chicago, IL
Corporate Data Exchange (CDX)	(609)683-4422	PR Newswire/ Business Wire. Logon: hello user.cdx	Computing Canada Newspaper	Willowdale, Ontario
Crosstalk Communications BBS	(404)740-8428	Product Support for Crosstalk for Windows/MK4/XVI	LaFountain Research Corp/Tad LaFountain	Princeton, NJ
Cul-de-Sac Bar & Grill	(508)429-1784	Multiline Service - Ham Radio - Humor - TDBS Applications	Pete White	Roswell, GA
CyberStore - a COCONET BBS	(604)526-3676	All lines to v.32bis/v.42/v.42bis. CyberTools for BBS'es	CyberStore Online Info. Systems Inc.	Holliston, MA
Dark Side of the Moon	(408)245-7726	Home of WAFFLE, Unix UUCP BBS Software for DOS and UNIX	Thomas E. Dell/Darkside International	New Westminster, BC
Data Core BBS	(310)842-6880	25 line Major BBS	Matthew Schoen/Delta Enterprises	Mountain View, CA
DataLink RBBS System	(214)394-7438	Weather Satellite Imaging. NOAA Satellite Tracking-AMSAT-NA	Dallas Remote Imaging Group/Jeff Wallach	Los Angeles, CA
Dawg Byte	(615)385-4268	ANSI Art Club 1:116/29	Kevin Snively	Carrollton, TX
				Nashville, TN

DeepCove BBS	(604)536-5885	16 Line TBBS with 3500 MBytes of files for IBM, MAC, Amiga	Wayne Duval	White Rock, BC
Denver Exchange, The	(303)623-4965	Denver's Most Diverse Gay/Lesbian Info Service	James Craig	Denver, CO
Denver Free-Net	(303)270-4865	Free Community Online Service - Health Info	University of Colorado Health Science	Denver, CO
DragonNet 386/451	(409)765-5459	Multiline MAJOR BBS with 4 GB - 64 lines Interactive Games	Robert Michael/Dragon Profit Systems	Galveston Island, TX
EarthArt BBS	(803)552-4389	Wildlife/Conservation Art Gallery GIF Images	Ambassador Wildlife Gallery/Bob Chapman	North Charleston, SC
East Bay X-Change 372/888	(803)556-7485	Home of XRS Offline Mail Reader	Mike Rattledge	McClellanville, SC
Ed-Net	(604)988-4442	Uncover School Board Multi-Line Educational Network	Barry Macdonald	Vancouver, BC
Electric Ideas Clearinghouse	(206)586-6854	Energy Efficiency Efforts In Pacific Northwest-HydroElec	Bonneville Power Administration WSE	Olympia, WA
Electronic Publishers BBS	(503)624-4966	News-Finance-Sports-Games-2GB File Library	Brian Cash	Portland, OR
Electronic Zone, The	(412)349-3504	Specializing in Hypertext	William R. Forbes	Indiana, PA
Energy Info Admin E-Publications	(202)586-8858	Variety of Petroleum/Coal/Electricity Energy Statistics	US Department of Energy	Washington, D.C.
eSoft Product Support BBS	(303)699-8222	Home of The Bread Board System (TBBS) BBS Software	Phil Becker/eSoft Inc.	Aurora, CO
Event Horizons	(303)697-5100	Home of Digitized Graphics Image Library - Adult GIF files	Jim Maxey	Lake Oswego, OR
Exchange BBS, The	(713)621-2191	Largest Gay/Bi/Lesbian Multiline BBS in Houston	James Craig/John Fields	Houston, TX
EXEC-PC	(414)789-4210	Largest BBS in US - 230 Lines - 70,000 files - 7 Gigabytes	Bob Mahoney	Elm Grove, WI
Executive Network	(914)667-4567	Interlink Netmail National Host - Multiline PCBoard System	Andy Keever	Mill Valley, CA
Eye Contact BBS	(415)255-5972	22 line Oracom - Gay Issues - Popular Chat System	Herb Rose	Woodbridge, VA
Falken Support BBS	(703)803-8000	Support for FALKEN software - 16 lines - doors - chat	Ren L'Ecuier	Victoria, BC
Farwest BBS	(604)381-3934	Large Western Canada Galacticom Info System	Scotty Olson	San Diego, CA
FAX/Satellite Services BBS	(619)224-3853	NOAA Weather Satellite Images - Russian/Japanese Sat Pics	Federal Communications Commission	Columbia, MD
FCC Public Access Link	(301)725-1072	Equipment Authorization Status Advisory Service	Federal Library Information Network	Washington, D.C.
FEDLINK ALIX II	(202)707-4888	Info on Federal Libraries - Excerpts Library of Congress News	Tom Jennings	San Francisco, CA
Fido Software BBS 1:125/111	(415)863-2739	The First Fido BBS and home of Fido BBS 12s	J.J. van der Maas	Utrecht, Holland
Fido Tech Stand	31-30-735900	Fidonet Technical Information for Holland	Bill Essex	San Francisco, CA
Frog City BBS 125/10	(415)863-9697	Gay Community BBS - AIDS Info - Desktop Publishing - MACs	Middlesex News-Adam Gaffin	Framingham, MA
Frog The Computer	(508)872-8461	Newspaper BBS - Wierdnet Newswire. List of MA Libraries	Bill Hunter	Midlothian, VA
FreeBoard BBS, The	(804)744-0797	Desktop Publishing File Distribution Network 1:264/212	Chris Ambler, Fubar Systems	San Luis Obispo, CA
FSBBS Prototype System	(805)543-8227	Home of FSUUCP and FSBBS - Unix Communications for DOS	Vincent Reece	Corvallis, OR
Fun Connection	(503)753-8431	Multiline Entertainment - 8 Lines Games/Chat/News	Dean Kerl/Datasafe	Albuquerque, NM
Garbage Dump, The	(505)294-5675	Online Chat Service - Adventure Games - National ChatLink	Gary Gabrick	Irvine, CA
Gateway Communications BBS	(714)863-7097	Novell Network/TCP-IP Shareware Utilities	Jeff Breiner/Bill Mullen	Rockwood, MI
Gateway On-Line	(313)291-5571	Interactive Chat, Multiplayer Games, Usenet/Internet, E-mail	Tom Getty's	Latayette, CO
Gateway Technologies	(303)673-9470	Outstanding IBM Shareware on a small system	Marc Teitler	San Diego, CA
General, The	(619)281-8616	Popular File Library - GIF Images	Bill Thoen	Boulder, CO
GLIB	(303)447-0927	Graphics Information Systems/Mapping topics	Community Educational Svcs. Foundation	Arlington, VA
GPO WINDO Online Service	(202)512-1387	Gay and Lesbian Information Bureau - 11 Lines - 9600 bps	US Government Printing Office	Washington, DC
Greenpeace Environet	(415)512-9108	Fed Information from EPA, DOE, State Department - others.	Dick Dillman/Greenpeace	Norcross, GA
Hayes Advanced Systems Support	(800)874-2937	Ecological and Peace Issues - Disarmament/Toxics/Wildlife	Hayes Microcomputer Products	Peoria, IL
Heartland Free-net	(309)674-1100	Customer Support Line for Hayes Customers. V-series/Ultra	Peoria County Board/Bradley University	Philadelphia, PA
Hepner/Satronics TBBS	(215)698-1905	Community Online Service - Free Internet E-Mail Boxes	Mark Miller	New Hartford, CT
HH Info-Net BBS	(203)246-3747	Reptile and Amphibian Studies - Poison Snakes/Toads/Fish	Lee Winsor	Berkeley, CA
HoloNet	(510)704-1058	MS Windows and OS/2 Files our specialty	Information Access Technologies, Inc.	Don
Home Power Renewable Energy BBS		National Access.INTERNET,USENET,CHAT,GIFS,FILES	Photovoltaics/Micro-hydro/Generators - Home Power Magazine	
Holka/Redwood Alliance		(707)822-8640		
HouseNet BBS	Arcata, CA	Home Fixup/Repair/Renovation Tips, Advice, and Articles	Gene and Katie Hamilton	St. Michaels, MD
Hysteries	(410)745-2037	Amiga File Distribution Network 1:163/109	Russell McOrmond	Ottawa, Ontario
IBM National Support Center BBS	(613)231-7144	IBM PC User Groups Database - Newsletter Exchange	IBM National Support Center	Atlanta, GA
Inbound/Outbound/Teleconnect	(404)835-5300	Telephone Sales Trade Magazine Online Service	Harry Newton Publications	New York, NY
Index Systems	(212)989-4675	Excellent list of Atlanta BBS systems online	Rodney Abola	Marietta, GA
Infinity World	(404)924-8414	8 line Galacticom System - Many good text publications	Daniel Diachun	Lexington, KY
InfoHost Demo BBS	(606)278-2002	Demo BBS for InfoHost BBS Software - Multiline - Database	John Williams	Hasbrouch Heights, NJ
InfoLink for Upper East Tenn.	(201)335-2253	Space Database - Online Store - Chat	Arthur Geflen	Johnson City, TN
Inns of Court, The	(615)434-2551	LAN Related Files and Utilities 1:124/6101	Intel Corporation PCEO Division	Dallas, TX
Intel PCEO Support BBS	(214)458-2620	Support for Intel PC Products - Inboard 386/AboveBoard 286	Mike Sussell	Hillsborough, OR
Invention Factory	(503)645-6275	46 Lines - 100 Directories - Full Usenet Feed - 8.2 GB	Don Shepherdson	Bellevue, WA
Investor's Online Data	(212)274-8110	Online Investment/Stock Market Information/Tech Analysis	JDR Microdevices	San Jose, CA
JDR Microdevices BBS	(206)285-5359	Online Hardware Order - Catalog - 1.1 GB Files - Quizzes	Alpha Systems Inc./Bill Griffin	Roswell, GA
JOBS	(408)559-0253	Online Job Listings - 2186 Technical Pos. - 10,000 Corps.	Keith P. Graham	Nyack, NY
Keith Graham Shareware Support	(404)992-8937	OPTIK, TEXT2COM, CBOOT, very good shareware utilities	Federal Reserve Bank of Minneapolis	Minneapolis, MN
KIMBERLEY BBS	(914)623-0039	Prime Rate-Fed Funds-T-Bill-Discount Rate-Economic Data	Jim and Karen Burt	Boulder, CO
King's Market BBS 104/115	(612)340-2489	400 MB Books, Writers Area - TRS 80 Support	Artisof Inc.	Tucson, AZ
LANlastic BBS	(303)665-6091	Support for LANlastic local area network	Tim Pozar	San Francisco, CA
Late Night Software 125/555	(602)293-8065	Home of UFGATE - Software to connect PCs to UUCP/Usenet	Bill Sorcinelli	Spokane, WA
LegalEase	(415)695-0759	Legal Issues/Forms - Law BBS List	Mark Smith	Montreal, Quebec
MAC-LINK	(509)326-3238	Macintosh Oriented Support BBS - 6 Lines - Informa/BIX		
	(514)486-8959			

BOARDWATCH MAGAZINE

NATIONAL LIST OF ELECTRONIC BULLETIN BOARDS AND ON-LINE INFORMATION SERVICES - FEBRUARY, 1993

SERVICE	PHONE	DESCRIPTION	SPONSOR/SYSOP	LOCATION
Macalot Bulletin Board	(412)846-5312	Support for Second Sight BBS Software for Macintosh	Jeff Dripps/FreeSoft Company	Beaver Falls, PA
MacInternational	(803)798-3755	Largest MAC BBS on East Coast	Ralph Yount	Columbia, SC
Magpie BBS	(212)420-0527	Support/Demo System for Magpie BBS/Conferencing Software	Steve Manes	New York, NY
MaxiHost Support BBS	(209)836-2402	MaxiHost BBS - small, very easy to run BBS	Don Mankin	San Ramon, CA
McAfee Associates BBS	(408)988-4004	Computer Virus Information - VIRUSCAN and CLEANUP	John McAfee/CVIA	Santa Clara, CA
METRO Online Entertainment	(212)831-9280	32 line DLX with City Guide/Ski Database - Matchmaker - Chat	Bruce Kamm/Metro Online Services	New York City, NY
Micro Foundry, The	(415)598-0398	2.2 GB Downloads - Your Online Software Source - Boardwatch	Thomas Nelson/Clockwork Software	San Jose, CA
Micro Message Service	(919)779-6674	USA Today/Boxoffice Magazine - Large Download Area	Mike Stroud	Raleigh, NC
Micro Tech BBS	(314)334-6359	Support for OSIRIS Multiline BBS Software - IRIS Mail	Micro Tech	Cape Girardeau, MO
MicroTm Technical Support BBS	(206)649-9836	Support for Popular RBase Relational Data Base System	MicroTm Corporation	Redmond, WA
Microsoft Download BBS	(206)936-6735	Windows Technical Notes and Support Information	Microsoft Corp/Scott J. Honaker	Bellevue, WA
Microsystems Software Inc.	(508)875-8009	HandiWare Software for Handicapped - CodeRunner C Utilities	MSI - Reed Lewis	Framingham, MA
MindVox	(212)988-5030	Internet Access, E-Mail, Newsgroups, ftp/telet	Phantom Access Technologies	New York, NY
Minnesota Spacenet	(612)920-5566	Minnesota Space Frontier Society - NASA News	Ben Husset	Minneapolis, MN
MOG-UP'S EMS, The	(818)366-1238	5 Lines - 8 Networks CD-ROMS - 2.8 GB Hub Services HST/V.32	Tom Timpidis	Granada Hills, CA
Mountain Air BBS	(703)427-0226	Adult Based BBS	Edward Lee Wood, Jr.	Roanoke, VA
Movie BBS	(718)939-5462	Movie Reviews and Information - Television	Clarke Ulmer	New York, NY
N.A.C.D. BBS	(912)246-3280	Cave Scuba Diving - Superb Special Topic System	National Assoc. of Cave Divers	Gainesville, FL
N8EMR Ham BBS	(614)896-2553	login:hbs HAM Radio/AMSAT Unix System - Satellite/Packet	Gary Sanders	Westerville, OH
NAPLS Graphics BBS	(613)727-5272	NAPLS Graphics Terminal and Editor Software	MicroStar Corp.	Nepean, Ontario
NASA Spacelink	(205)896-0028	NASA Educational Affairs Div. - Flight Data/Space History	Marshall Space Flight Center	Huntsville, AL
Nashville Exchange	(615)383-0727	12 line TBBS - Games/TDBS Software Development 1.8 GB	Ben Cunningham	Nashville, TN
National Genealogical BBS	(703)528-2612	Family History - Genealogical Research - Gravestone Haunting	National Genealogical Society	Arlington, VA
Netcom Internet Guest System	(408)241-9760	Internet Access System - type "guest" at login for info.	Netcom Online Communications Services	San Jose, CA
Network World Bulletin Board	(508)620-1178	LAN and WAN Issues and Technology	Network World Magazine/CW Communications	Framingham, MA
NIST ACTS	(303)494-4775	Automated Computer Telephone Service - Sync PC to NBS Time	Nat. Institute for Standards/Technology	Boulder, CO
Nixip	(303)920-1263	Large Library of Adult GIF Graphics Images	Nick De Wolf	Aspen, CO
NOAA Space Environment Lab	(303)497-5042	Solar Flare/Geomagnetic Data Online	National Oceanographic/Atmospheric Admin	Boulder, CO
NoGate Consulting	(616)530-3392	Home of PAK archive utility	Mike Neuhaus Gus Smedstad	Grand Rapids, MI
Numisnet	(301)498-8205	Collecting of Coins, Medals, and Exonumia	The Mitchell Group	Laurel, MD
OAQPSSTN	(919)541-5742	Air Quality Planning and Standards Technology Transfer Net	Environmental Protection Agency	Research Triangle Park, NC
OASIS BBS	(404)627-2662	Home of Atlanta Bulletin Board List - ABBL	Robert Orr/Online Atlanta Society	Dacula, GA
Occupational Health/Safety BBS	(212)385-2034	Job Safety Issues for Artists, Musicians, Entertainers	Mike McCann/Center for Safety in Arts	New York, NY
Odyssey	(818)358-6968	Adult Multiline Chat System - Games - Magazines - Downloads	Michael Allen	Monrovia, CA
OERI BBS	(800)222-4922	Educational Statistics and Data - Performance Stats -	US Department of Education	Washington, D.C.
Old Colorado City Communications	(719)632-4111	Political Discussions - Unix UUCP Public Access - Multiline	Dave Hughes	Colorado Springs, CO
Online Now	(807)345-5522	Canada's shareware house is online now	Gary Walsh/Tom Haavisto	Thunder Bay, Ontario
Online With Hayes	(404)446-6336	Hayes Public Bulletin Board - Conferences/SGS/Support	Hayes Microcomputer Products	Norcross, GA
Oracle PC	(610)260-8222	South Australian TBBS Multiline System	Don Crago	Pooraka South Australia
Oracom Support BBS	(619)346-1608	Sales and Support for Oracom Multiline BBS Software	Surf Computer Services	Colesville, MD
Osprey's Nest	(301)989-9036	Birdwatching, Bird feeding, Naturalist/Ecology Issues	Fran and Norm Saunders	New Orleans, LA
Ozone Hole, The	(504)891-3142	Boardwatch-USA Today-Internet-Usenet-RIME	Mike Mathews	Hicksville, NY
P.D.S.L.O. BBS	(516)938-6722	Home of THE LIST National BBS List	James Toro	Tampa, FL
PacComm BBS	(813)874-3078	Packet Radio Equipment Supplier - TNC/PSK Modems	Gwyn Reedy/PacCom Inc.	Cleveland, OH
PC Ohio	(216)381-3320	Shareware library with 100% USR HST access - 24 lines	Norm Henke	Edmonston, MD
Pennywise	(800)752-3012	Online Office Supply Sales Service	Pennywise	Amherst, MA
PHYSICS Forum BBS	(413)545-1959	Physics and Astronomical Sciences	Univ. of Mass. Dept. of Physics/Astronomy	Pinecliffe, CO
Pinecliffe BBS 104/28	(303)642-7463	Large Shareware Library/Echomail Conferences since 1985	Craig Baker	Montreal, Quebec
Pinnacle Software BBS	(514)345-6654	Support for Sapphire BBS Software	Timothy Campbell/Pinnacle Software	Glendale, WI
PKWare BBS	(414)354-8670	Home of PKZIP 1.10 Compression Utility	Phil Katz/PKWare Incorporated	Tidewater, VA
Pleasure Dome	(804)490-5878	Sexually Explicit Fantasy Chat System - Adults only	Tom Terrific	West Lake Village, CA
Practical Peripherals BBS	(805)496-4445	Support BBS for Practical Peripherals Modems	Thomas Smith/DataStorm Technologies Inc.	Columbia, MO
ProComm Support BBS	(314)875-0503	Home of ProComm 2.4.3 and ProComm Plus Comm Prgms	Tim Brown/Computer Solutions	Marshfield, WI
Promised Land, The	(715)387-1339	16-Line/2.5GB/11,000+ Files/ WINDOWS, Chat & More	Public Brand Software	Indianapolis, IN
Public Brand Software BBS	(317)856-2087	Commercial Shareware Vendor	Tony Javorcik/Public Data Network	Grants Pass, OR
Public Data Network	(503)474-8662	64-line System with \$2.50/hour Local Access	Mark (Sparky) Herring	Germanstown, TN
QMail Deluxe Support BBS	(615)230-8822	Support for QMail Deluxe and 1sReader offline mail utils	Qualitas Inc.	Bethesda, MD
Qualitas, Inc. BBS	(301)907-8030	386MAX and BlueMAX Memory Management Software Support		

QuickBBS Support BBS 363/34	(407)896-0494	Product Support for QuickBBS Software	Richard Creighton/Steve Gabrilowitz	Orlando, FL
Random Access Information Svc.	(503)695-3250	11,000 GIF Images - 20,000 DOS/Windows Shareware Files	Janice Stevens	Corbett, OR
Ronin BBS	(214)938-2840	Traditional File and Message BBS	Chuck Mattern	Red Oak, TX
Rose Media	(416)733-2780	19 GB - Home of Rosemail - Publications/Conferences	Vic Kass	Willowdale, Ontario
Rusty & Edies	(216)726-0737	Large ML PCBoard run by Husband and Wife - NFL/Tradewars	Rusty and Edwina Hardenburgh	Boardman, OH
Salt Air BBS	(801)261-8976	Home of PCBoard BBS Software - National List of PCB Sys	Clark Development Company/David Terry	Murray, UT
San Diego Next User's Group BBS	(619)456-2522	Support for Next Computers	Brian Dear/San Diego Next User's Group	San Diego, CA
SBA Online	(800)697-4636	Advice for Small Business Owners on Financing/Management	Small Business Administration	Washington, DC
Science Resource Studies BBS	(202)634-1764	Federal R&D Budget - Technical Labor Market Statistics	National Science Foundation	Washington, D.C.
SDN Project, The 1:14/840	(203)634-0370	The Original Software Distribution Network	Ray Kaliss	Meriden, CT
SEAboard!	(804)442-6047	Support system for ARC, SEADOG, and AXE software	System Enhancement Associates	Nassawadox, VA
Seagate Technical Support BBS	(408)438-8771	Installation and Specifications for Hard Drive Models	Seagate/Bill Rudok	Scotts Valley, CA
Searchlight BBS	(516)689-2566	Support system for Searchlight BBS Software	Searchlight Software	Stony Brook, NY
SemWare Support BBS	(404)641-8968	Home of QEdit - A Superb Shareware Text Editor	Sammy Mitchell/SemWare Software Products	Marietta, GA
SENDIT	(701)237-3283	North Dakota K-12 Educational Net: net sendit.nodak.edu	Gleason Sackman/NDU	Fargo, ND
SIGCAT BBS	(703)648-4168	CD-ROM Optical Publishing Info - Lists of Gov. CD Data	SIG on CD-ROM Applications and Technol.	Gaithersburg, MD
Sistema Profesional Informacion	525 590-5988	Largest BBS in Mexico - Spanish Language TBBS	Debbi McKay	Mexico City
Skeleton Closet, The	(804)671-8547	Geology Programs File Distribution Net 1:271/23	Society for Technical Communication	Virginia Beach, VA
Society for Technical Comm. BBS	(703)522-3299	STC Job Service, Freelance Registry - Technical Writers	Dan Linton	Washington, D.C.
Software Creations BBS	(508)368-4137	Family Oriented Software/Commander Keen Series	Anton Johnson	Clinton, MA
Sonshine Express BBS	(510)651-2440	Home of Apogee Software/Commander Keen Series	Roy Timberman	Fremont, CA
Sound Advice BBS	(816)436-4516	Twenty Line PCBoard with 2 Gigabytes Storage - HST Modems	Erik VanRiper	Gladstone, MO
Source for Source, The	(516)968-7824	Clipper/XBase/General Programming File Distribution 10/7/230	Larry Mundy	Bay Shore, NY
Spare Parts 1:130/38	(817)540-3527	Windows Distribution Network - Windows utilities/files	Michael Keylin	Bedford, TX
Star-Link Network BBS	(718)972-6099	9-nodes, 2.1GB, link, 75,000 programs	John Land	Brooklyn, NY
Starlink BBS	(915)235-4818	Technical Support for Predictive Maint Customers	Federal Emergency Management Agency	Sweetwater, TX
State and Local Emergency Mgmt.	(202)646-2887	Hazardous Materials/National Dam Watch/Emergency Info	Tim Stryker	Washington, D.C.
Superdemocracy Foundation BBS	(305)370-9376	Online Democracy/Political Culture for the Future	Clinton Herbarium, Buffalo Museum	Davie, FL
TAXACOM	(716)896-7581	Bolany, Herbaria, FLORA ONLINE Newsletter, Latin Translation	Bob Baskerville/MMB Development Corp.	Buffalo, NY
TEAMate Unix Bulletin Board	(310)318-5302	Demo/Support for TEAMate BBS Software for Unix	Chuck Forsberg/Omen Technology Incorp.	Manhattan Beach, CA
Telegodzilla	(503)621-3746	Home of Zmodem File Transfer Protocol/YModem/YAM	M&T Publishing	Portland, OR
Telepath	(415)358-8641	DBMS/Dr. Dobbs Journal Magazine Online Service	Jeff Woods/deltaComm Development	Redwood City, CA
Telix Support BBS	(919)481-9399	Support Service for Telix Communications Software	Fred Kohn	Cary, NC
The Back Room	(718)849-1614	America's Largest Exclusively Gay DB - Home of Gaycomm	Jim Appleby	Richmond Hill, NY
The Business BBS	(310)477-0408	Utilities/Support for Microsoft Windows	Girard Westenberg/Brian Bantee	Los Angeles, CA
The File Bank	(303)534-4646	16 Line File Library - Radio Comm/Astronomy - USA Today	Joseph Sheppard	Littleton, CO
The Ledge PCBoard	(818)896-4015	Home of Textview Door for PCBoard Systems	George Peace	Tujunga, CA
The Opowd Crowd	(708)885-8865	Specializing in outdoor activities and sports	Whole Earth Electronic Link	Hoffman Estates, IL
The Other BBS 1:1/0	(717)657-2223	Fidonet Zone Coordinator for North America 1:1/0	Clayton Manson	Harrisburg, PA
The Well	(415)332-7190	Unix Conferencing System - \$10 monthly plus \$2.50 Hourly	Sam Smith	Sausalito, CA
Titan BBS	(904)476-1270	Adult BBS - Online Games - GIF Images	National Review Magazine	Pensacola, FL
Tool Shop BBS	(818)891-6780	Home of HS-Link and other tools for PCBoard Systems	John Burden	New York, NY
Town Hall	(800)648-6964	Conservative Political Conference and Debate	Software@work	Exeter Devon, U.K.
Trinity 1 BBS	44 392 410210	United Kingdom Distributor of Boardwatch Magazine	U.S. Robotics Corporation	Chattanooga, TN
TurBoard	(615)756-7810	NAPLPS Graphics BBS System	U.S. Department of Commerce US Naval Observer	Skokie, IL
U.S. Robotics - Sit UBU Sit	(708)982-5092	Support for US Robotics HST 9600 bps Modems	US Geological Survey Earthquake Info Cnt	Washington, D.C.
US Naval Observatory BBS	(202)653-1079	Time - Date - Sunrise - Sunset - Enter @TCO for Commands	US Naval Observatory	Denver, CO
USGS Quick Epicenter Determin.	(303)273-8672	Earthquake Epicenter Data - Geomagnetism/7E2 800-358-2663	University of Texas at Austin	Austin, TX
USNO Time of Day for Clocks	(202)653-0351	Xmits ASCII Time String - Sync Your PC to USNO Atomic Clock	Gene Rodriguez - Ventura Professional	San Jose, CA
UT Library Online Catalog	(512)471-9420	Online Library Card Catalog Listing 3.5 million entries	Sieve Root/WeatherBrief Data Services	Salt Lake City, UT
Ventura Professional Forum	(408)227-4818	Ventura Publisher User's Group BBS	Western Digital Corporation	Los Angeles, CA
WeatherBank	(800)327-2727	Online Weather Forecasts for Any City - Download Radar Data	Dave Harrison	Bakersfield, CA
Western Digital	(714)753-1068	Hard Drive/Controller Installation and Config Data	MSI - Mustang Software, Inc.	Windor, CT
Westside, The	(213)333-4050	Area's Largest/Most Active Adult System-Chat, E-mail, Games, Multiline Support System for Wildcat BBS Software	Jim Taylor	Columbus, OH
Wildcat HQ BBS 210/12	(805)395-0650	Over 27 Online Adventure Games	Joseph G. Balshone	Orem, UT
Windor Manor	(614)224-1635	Multi-Line Totally Free BBS-Multi Player Games, Files, Message	Word Perfect Corporation	Concord, CA
Wizard's Gate, The	(801)225-4444	World Perfect 4.2/5.0/5.1 Support/Printer Drivers	Wayne Bell	Rolling Hills Estates, CA
Word Perfect Customer Support	(510)676-2919	Reformed Protestant Topics; Telelinder Host	XTree Company	San Luis Obispo, CA
Worldview BBS	(310)208-6689	Support for WWIV BBS Software	XyQuest Inc. - Christine Madsen	Bellerica, MA
WWIV Support BBS	(805)546-9150	Support for XTree Pro Gold DOS Shell Program	Bill Scarborough/Cyanosis Rex	Austin, TX
XTree BBS	(508)667-5689	Support for XyWrite Word Processor - Custom Keyboard Files		
XyQuest Support BBS	(512)451-3222	Disability Rights Issues - Variety of Disability Newsletters		
Yellow Dream Machine BBS				

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The Major BBS Development Team with about 5% of the code they wrote and tested, line by line. From left to right: Bert Love, Edward Bush, Richard Skurnick, Tim Stryker, Bob Stein, Brian Stephens, Sheri Robert, Les Bird, Chris Robert, Scott Brinker, Chris Kotacka

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